Newborn HAL®

S3010

Gaumard®
Simulators for Health Care Education

Newborn HAL is an interactive educational system developed to assist a certified instructor. It is not a substitute for a comprehensive understanding of the subject matter and not intended for clinical decision making.

User Guide G13.8.1

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Care and Cautions

Overall Warnings

Remember that damage caused by misuse is not covered by your warranty. It is critical to understand and comply with the following guidelines. Additional warnings are found throughout the documentation

If the simulator will not be used for an extended period, re-charge the battery at least once every 30 days to prevent damage to the battery.

Do not attempt to intubate without lubricating the airway adjunct with a silicone oil lubricant (provided). Failure to do so will make intubation very difficult and is likely to result in damage.

NEVER disconnect the communications module while the GIGA software is running. The software will halt, and the module may be damaged.

When simulating drug administration via endotracheal tube, providers must use an empty syringe. Passing liquids into the trachea or esophagus may cause internal damage.

Newborn HAL should be cleaned with a cloth dampened with diluted liquid dishwashing soap. If medical adhesives remain on the skin, clean with alcohol wipes. **DO NOT USE "GOO GONE"** as the citric acid in the formula will cause pitting of the various materials comprising your simulator.

Store Newborn HAL in a cool, dry place. Extended storage above 85 degrees Fahrenheit (29 Celsius) will cause the simulator to soften and slowly warp. It is acceptable to operate Newborn HAL at an ambient temperature of 95 degrees Fahrenheit (35 Celsius).

Newborn HAL is "splash-proof" but not water-proof. Do not submerge or allow a large volume of fluid to enter the interior of the simulator. Do not expose the tablet computer to water or excessive dust unless it is protected by a rugged case (available separately).

Mouth to mouth resuscitation without a barrier device is not recommended, as it will contaminate the airway. Treat Newborn HAL with the same precautions that would be used with a real patient.

The use of needles larger than 22 gauge will reduce the lifetime of the lower arms' skin and veins.

When the arm veins require replacement, contact Gaumard to arrange for a lower arm exchange. Refer to the Consumables and Replacement Parts section of this guide, and contact customer service for more information.

Do not inject fluids into the intramuscular sites. Intramuscular sites are for placement exercises only.

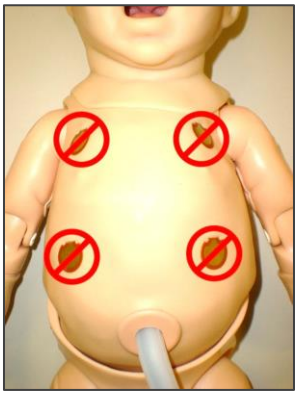
Do not remove or replace the umbilical cord while Newborn HAL is in operation. Doing so will cause damage to the system.

Do not pull or carry the simulator by the limbs. Handle Newborn HAL with the same care as a human patient.

Electrical Therapy

One of Newborn HAL's most exciting features is the accommodation of real monitoring and electrical therapy devices. In most cases, no special instruction is necessary to use such devices. Newborn HAL's conductive skin sites allow the attachment of real EKG electrodes. This feature permits the user to track cardiac rhythms with their own equipment just like with a human patient. A few special concerns are described below.

Newborn HAL does not accept real electrical therapy. **Do not pace or defibrillate Newborn HAL with real electrical equipment.**



The Gaumard User Interface features a virtual electrical therapy function to simulate defibrillation or pacing.

Getting Started

Overview

GENERAL

- Tetherless and fully responsive even while being transported
- Powered from an internal rechargeable battery or wall outlet
- Battery capable of 300 recharges
- Simulator receives commands from a wireless tablet PC and operate at distances up to 300 feet
- Option to operate automatically using Automatic mode or manually by the Instructor
- Training Guide with both basic and advanced interactive scenarios
- Use pre-programmed scenarios, modify them or create your own quickly and easily
- Installation and training worldwide
- Simulation Made Easy ™

AIRWAY

- Calibrate head flexion to obstruct airflow and chest rise
- Oral and nasal intubation
- Use an ET tube or LMA
- Sensors detect depth of intubation
- Unilateral chest rise with right main stem intubation
- Multiple upper airway sounds synchronized with breathing

APPEARANCE

- Color responds to hypoxic events and interventions (healthy, mild cyanosis, severe cyanosis)
- Forearms movements reveal muscle tone (active, medium, limp)

BREATHING

- Control rate and depth of respiration and observe chest rise
- Ventilation is measured and logged
- Select independent left and right lung sounds
- Chest rise and lung sounds are synchronized with selectable breathing patterns
- Accommodates assisted ventilation, including BVM and mechanical support
- Unilateral chest rise

CIRCULATION

- Conductive skin regions allow for ECG monitoring with real equipment
- Multiple heart rhythms, rates and complications
- Heart sounds include a normal heart as well as atrial and ventricular septal defects
- Chest compressions are measured and logged
- Blood pressure can be taken bilaterally using a cuff, palpation, or auscultation
- Blood pressure sounds audible between systolic and diastolic pressures
- Umbilical pulse and bilateral brachial pulses operate continuously
- Pulse strengths vary with blood pressure and pulses are synchronized with ECG.

SIMULATOR

- Physical size is 50th percentile at 40 weeks gestational age
- Interchangeable genitalia
- Internal rechargeable NiMH battery
- Venous access
- Bilateral IV training arms
- Patent umbilicus
- Intraosseous access at tibia

CONTROL

- Wireless tablet PC with stylus control
- Communication modules are FCC and CE Compliant
- Communications module can be used simultaneously with the tablet computer's integrated wireless (IEEE 802.11b) networking device

ACCESSORIES

- 100-240 VAC Charger
- Power supply
- Battery Charger
- Blood pressure cuff
- Instructions
- Carrying case

OTHER

- One year limited warranty, extended warranty to three years
- Installation and training services available

Terminology

It is wise to spend a moment familiarizing yourself with some of the terminology that will be used to discuss simulation with the Newborn HAL system.

Automatic Mode - In this mode, vital signs respond automatically to caregiver participation, instructor specifications, and pharmacologic intervention. The model used in this operating mode was developed based on physiologic principles. Features unique to this mode include: a comprehensive list of drugs for easy administration, a drug profile editor for adding new drugs or editing existing ones, among other things.

Facilitator - the person conducting the simulation; an instructor or lab staff member.

GUI - the Gaumard User Interface - is the software application, used to control the simulator and evaluate care providers.

Palette - a collection of Palette Items. Each profile has its own palette.

Palette Item - Any full or partial set of physiological parameters that have been grouped and saved together under a single name.

Profile - a unique Newborn HAL software configuration, including custom Palette, Scenarios, and options. Each Profile acts as a separate program, in that changes made to one profile have no effect on the others.

Provider - a person participating in the simulation as a healthcare provider.

Scenario - a saved sequence of physiological states, like a "playlist." Scenarios provide a level of automation that unburdens the facilitator and allows standardized presentation of symptoms.

Scenario Item - a Palette Item that is part of a scenario. Scenario Items may also represent a fixed delay period ("Wait") or a pause ("Wait Indefinitely").

Stylus - a special pointing device for the tablet computer. The stylus is the fastest and easiest means of controlling the Newborn HAL software. See the Equipment Set-up section of this guide for more information on working with the stylus.

Equipment Set-up

Control Table PC

The tablet PC is preloaded with the GIGA control software used by the facilitator to initialize the simulator and control the vital signs.

Before turning on the computer for the first time, please review the documentation included with the product for important care and warning information.

USING THE STYLUS

The tablet's stylus is a pen-shaped input used to interact with files and programs.

- Left click - tap the screen with the pointer. Tap twice rapidly to double-click.
- Right click - tap and hold a highlighted item or hold the button near the pointer and tap the item or text.

CALIBRATING THE STYLUS

As part of the initial setup process, calibrate the stylus using the Tablet and Pen calibration tool in the Windows® control panel. Complete the calibration process while holding the pen in a natural writing position for greater accuracy during normal use.

WIRELESS COMMUNICATION USB MODULE

The controlling computer transmits the startup and control commands to simulator through the USB RF communication module.

Connect the RF communication module to an available USB port on the tablet.

Secure the RF communication module to the tablet or PRO+ computer using the Velcro patch. The tablet is now ready to communicate with the simulator wirelessly. For information about the signal strength indicator, go to page 25

WARNING:
Never disconnect the communications module while the Newborn HAL software is running. Doing so can seriously damage the module.

Newborn HAL Battery

Newborn HAL (S/N B1010788 or higher) includes two separate power adapters labeled "Newborn HAL Charger" and "Newborn HAL Power Supply". Please review the use for each adapter before using the simulator for the first time.

BATTERY LIFE

Newborn HAL has a maximum battery runtime of approximately 3 hrs. Total runtime is dependent on the breathing rate, volumes, seizures, and muscle tone.

The battery charge is displayed on the software panel after the connection with the simulator is established. For more information about the battery indicator, refer to page 20.

WARNING:
Do not store the simulator with a discharged battery. It is good practice to re-charge the battery at the end of every simulation session.

If the simulator will not be used for an extended period, re-charge the battery at least once every 30 days. Doing so will prevent a reduction of the battery's total charge capacity to self-discharge.

CHARGING THE BATTERY

The simulator's battery can only be recharged using the "battery charger". In addition, the simulator must be off or in standby. The battery charger does not recharge the battery while the simulator is in use, nor does it keep the battery from discharging.

Turn the simulator off and connect the battery charger to recharge the battery.

To charge the battery:

1. Close the GIGA software to turn the simulator off
2. Connect the adapter labeled “Newborn/Premie HAL Charger” to the battery port located on the simulator’s right side.
3. Allow the simulator to charge for 2-3 hours (or until the charger displays a green light). The charger indicator light will show red during the charge period and green once the process is complete.

4. After the charger indicator light turns green, disconnect the charger. The simulator is ready for use.

Avoid using the simulator while the battery charger is connected. Please reference the troubleshooting guide for information on how to resolve battery issues.

USING THE POWER SUPPLY (SYSTEM S/N B1010788 OR HIGHER)

The “power supply” adapter allows the simulator to operate through long simulations sessions by drawing power from the wall outlet and not battery reserve. Use the power supply for simulation sessions lasting 2 hours or more. If simulation sessions are shorter than 2 hours, use the simulator’s battery reserve.

The “power supply” adapter will NOT re-charge the battery. Avoid using the “power supply” adapter when the simulator’s battery is completely depleted.

To operate the simulator from wall power using the power adapter:

1. Fully recharge the simulator’s battery using the “Battery Charger” adapter.
2. Disconnect the “Charger” and connect the “Power Supply” adapter.
3. Activate the GIGA software.
4. The GIGA battery icon will display a lightning icon when the power supply is connected.

Please contact Gaumard for information on the power supply upgrade for earlier Newborn HAL models.

Virtual Monitor

The Gaumard Monitors software displays NEWBORN HAL’s simulated vital signs in real time. The interactive monitoring software is preloaded in to the virtual monitors PC.

The virtual monitor PC also allows the facilitator to play back the session recordings stored in the PRO+ PC for debriefing.

VIRTUAL MONITOR PC SETUP

Refer to the manufacturer's documentation included with the virtual monitor system components for important safety, installation, and start-up information before turning on the computer for the first time.

To setup the virtual monitor PC:

1. Place the all-in-one PC within line of sight of the controlling computer
2. Connect the power supply
3. Connect the USB keyboard and mouse receiver
4. Turn on the computer

VIRTUAL MONITOR WIRELESS CONNECTIVITY

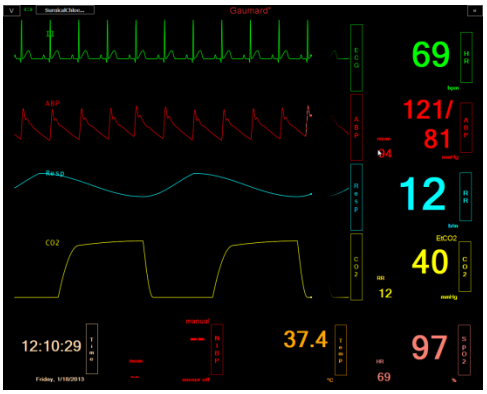
The control PC and the all-in-one virtual monitor PC automatically establish a wireless link at startup. The wireless connection allows the Gaumard control software to transmit the vital signs information to the Gaumard Monitors software.

To verify the wireless link between the two computers, click the wireless icon located on the task tray. The wireless network name is configured at the factory and may differ from the one seen below. To troubleshoot connection issues between the virtual monitor computer and the controlling tablet, please go to page 143.

GAUMARD MONITORS

After the wireless connection is established, double click or tap the Gaumard Monitors icon to start the vital signs software.

The Gaumard Monitors software is now ready to receive the vital signs information generated by the GIGA control software.



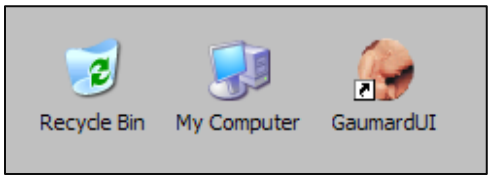
For more information about the Gaumard Monitors software, please refer to the Gaumard Monitors user guide.

Working with GIGA

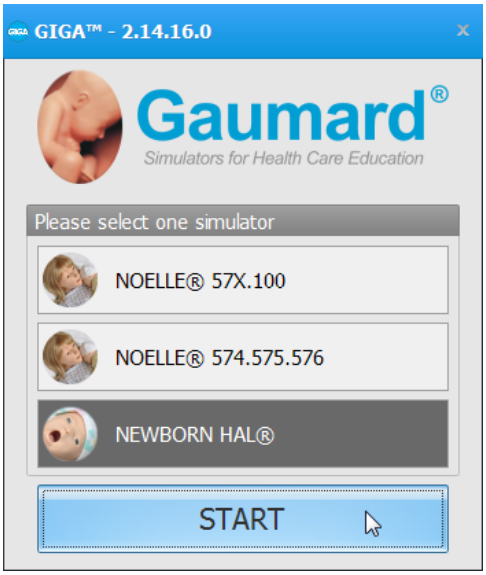
Starting the Simulator

After reading the manufacturer's care and caution information, press the power button to turn on the Tablet PC.

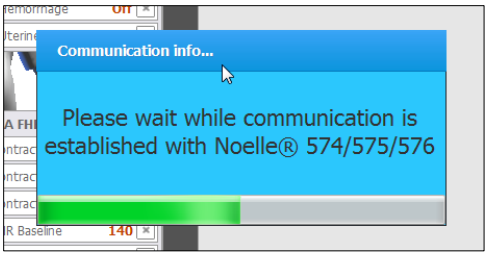
The GIGA software initializes the simulator. Double click the GIGA icon on the tablet's home screen to start.



The simulator selection menu is shown. Select NEWBORN HAL and click "Start".

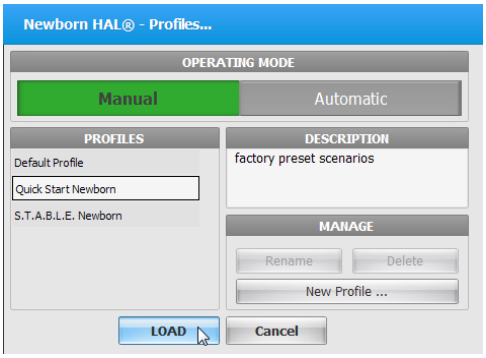


The wireless link between GIGA and the simulator is established within 1 minute.



Profiles and Operating Modes

After the startup screen, the profile and operating mode selection menu is displayed.

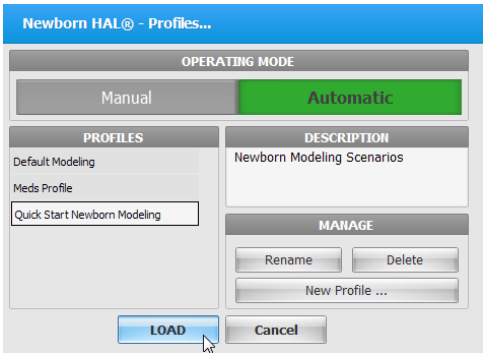


The GIGA control software has two modes of operation: Manual and Automatic. Each mode includes a Quick Start profile with preprogrammed scenarios exercises created in conjunction with experienced healthcare instructors and working medical professionals. Continue to the next section to learn more about the each operating mode and the profiles included.

After selecting an operating mode and profile, click "Load" to continue.

Manual Mode

In the “Manual” operating mode, the facilitator fully controls the vital signs and physiologic responses.



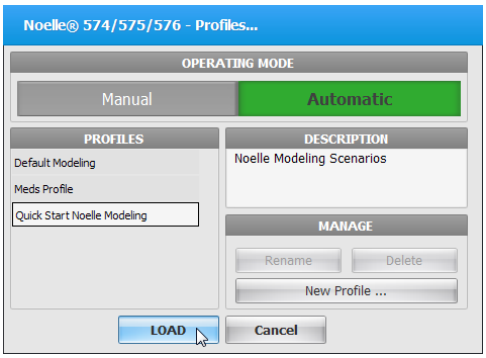
The Manual mode includes the following profiles:

Default Profile – includes one preprogrammed palette with healthy vital signs

Quick Start Newborn – includes eleven scenarios.

Automatic Mode

The Automatic mode assists the facilitator by automatically adjusting vital signs in response to caregiver participation, pharmacologic intervention, and manual input. For example, when facilitator increases the heart rate, the Auto mode will calculate the response and adjust the blood pressure automatically. To activate the operating mode as an upgrade option, go to page 103. For more information on how to operate the simulator using the Auto mode, go to page 30.



The Automatic mode includes the following built-in profiles:

Default Modeling – includes one preprogrammed palette with healthy vital signs

Meds Profile – includes a library of pre-programmed medications

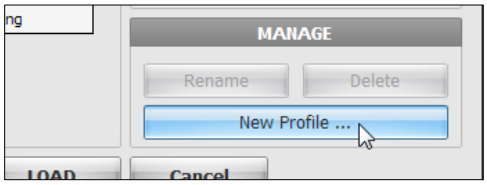
Quick Start Newborn Modeling – This profile contains eight linear scenarios and one branching scenario allowing instant simulation of a wide range of conditions.

CREATING A NEW PROFILE

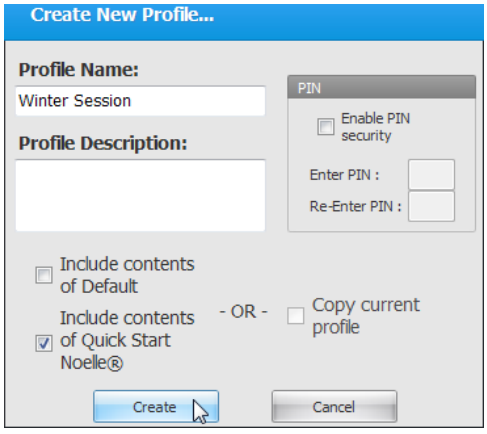
Profiles store palette, scenario, and option settings independently; changes made to one profile have no effect on the others. Below are some examples on how profiles are used.

- Assign one profile to each user of your Gaumard simulator system
- Use profiles to organize and protect palettes and scenarios
- Create a profile dedicated to a specific academic course taught by multiple instructors
- Devote an entire profile to one particular subject area, or even one particular scenario

To create a new profile, click “New Profile”.



Enter a name for the new profile followed by a description.

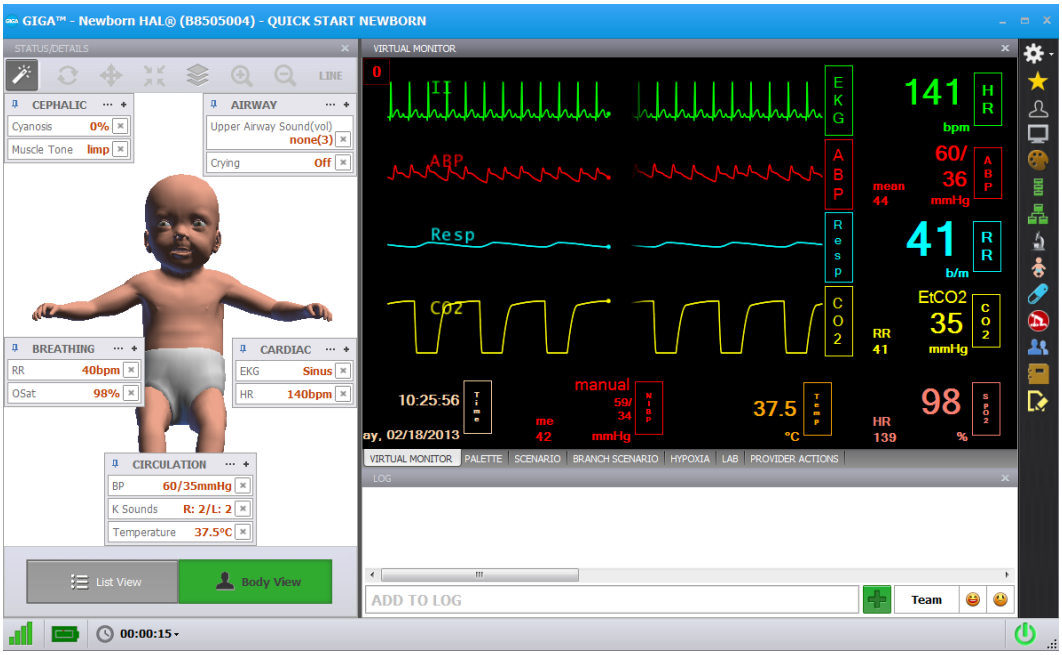


Lastly, click “Create” to save the new profile.

GIGA Interface

The GIGA software is used control the simulator, monitor the vital signs, and evaluate the provider's performance. The simulation technician or instructor carrying out the simulation operates the GIGA software

The GIGA control elements and scenario programming procedures are consistent throughout the Gaumard family of high fidelity simulators. Some software controls and features covered in this guide may be hidden depending on the simulator's hardware configuration and optional upgrades.



Connection status

The communication indicator displays the status of the radio link between the tablet's USB RF module and the simulator. Full bars indicate excellent communication (i.e., normal operation).

Battery indicator

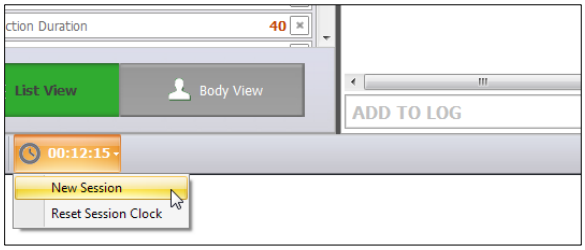
The battery indicator displays the battery charge information. An exclamation sign is shown when there is no communication with the simulator and battery information cannot be retrieved.

The simulator is set to STAND-BY mode automatically when the battery is depleted. The simulator will not initialize until the battery is recharged using the battery charger. Recall that the battery can only recharges when the simulator is powered off.

Feature	Runtime
Internal Battery	Approx. 3 hours

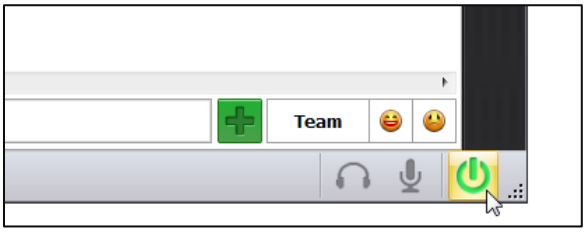
Session clock

The session timer displays the duration of the current session. Click the timer to reset the clock or to start a new session. Event entries in the text log are synchronized with the session timer.



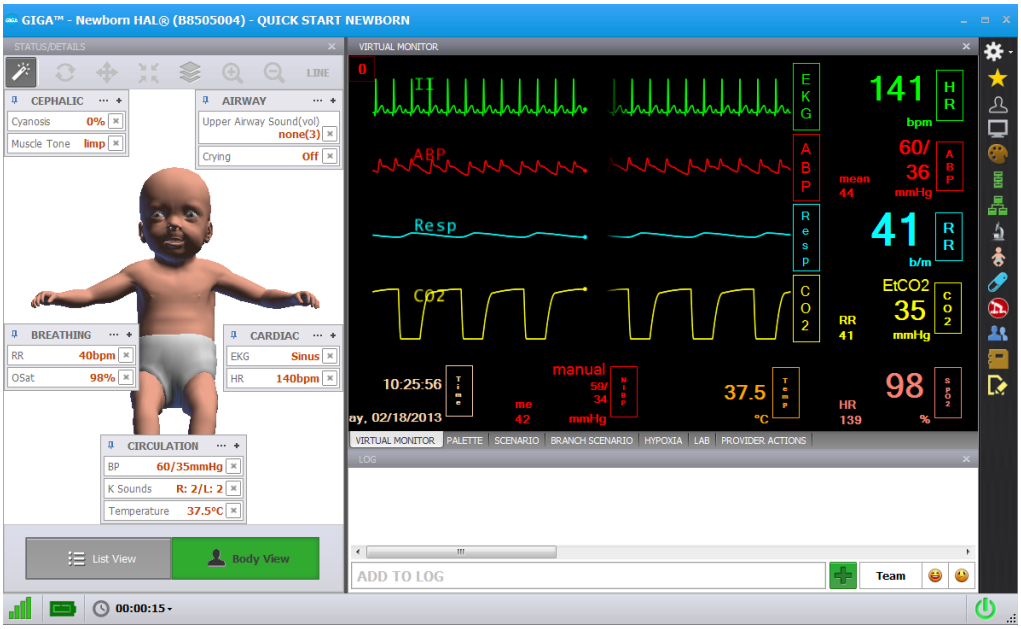
Power/Stand-by

The power button is located at the bottom right corner of the GIGA software. Toggle the power button to set the simulator to stand-by mode and then again to resume.



UI Panels and Tabs

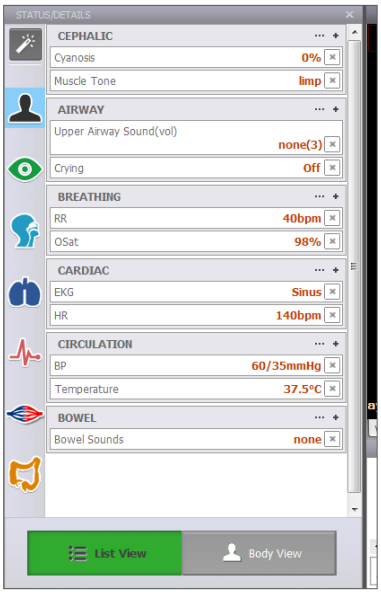
The GIGA user interface (UI) is divided into several panels and tabs. The following sections outline the function and use of each of the controls on the screen.

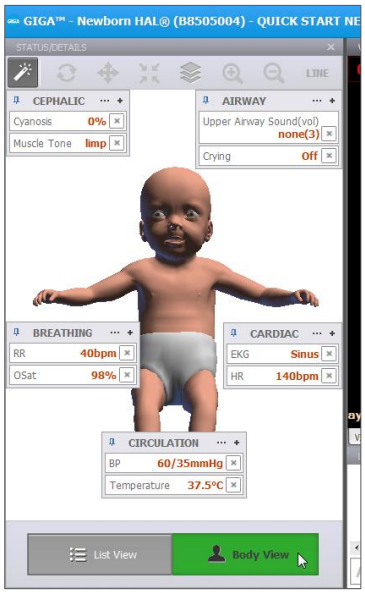


Status/Details

The Status/Details panel is used to monitor and control the simulator's vital signs. The individual parameter controls displayed on the details tab provide the simplest method for controlling the simulator's vital signs, sounds, and features.

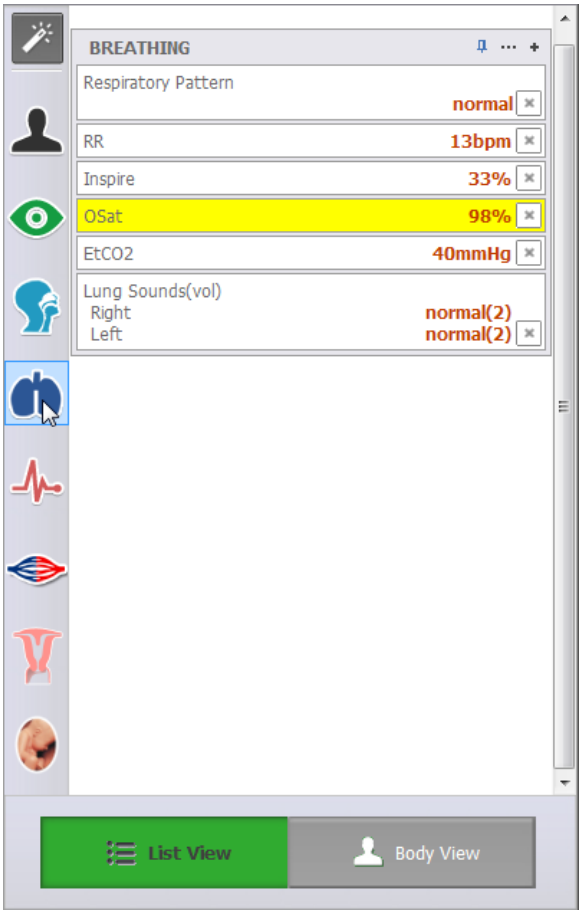
There are two viewing modes for controlling the simulator. The "List view" displays the vital signs controls in a list format, while the Body view displays the interactive patient model with floating control boxes. Toggle the view buttons to switch between the two modes.



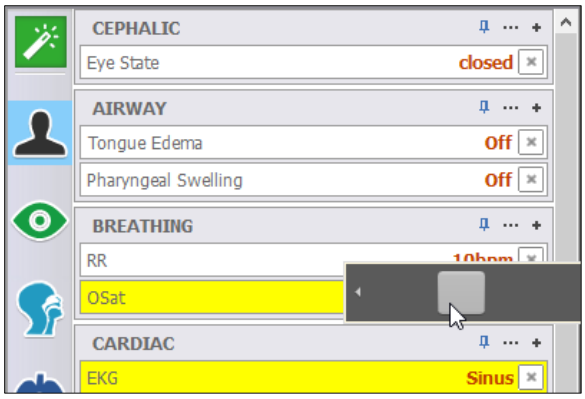


SYSTEMS LIST VIEW

In the List View, the vital signs controls are divided into separate categories. Click through the categories to view the controls available for the current simulator configuration.



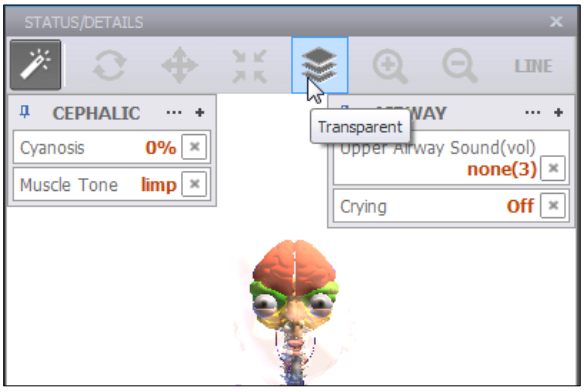
Enable the “instant apply” option and click the control to change the vital sign to a new value. Vital signs undergoing change blink yellow.



THE BODY VIEW

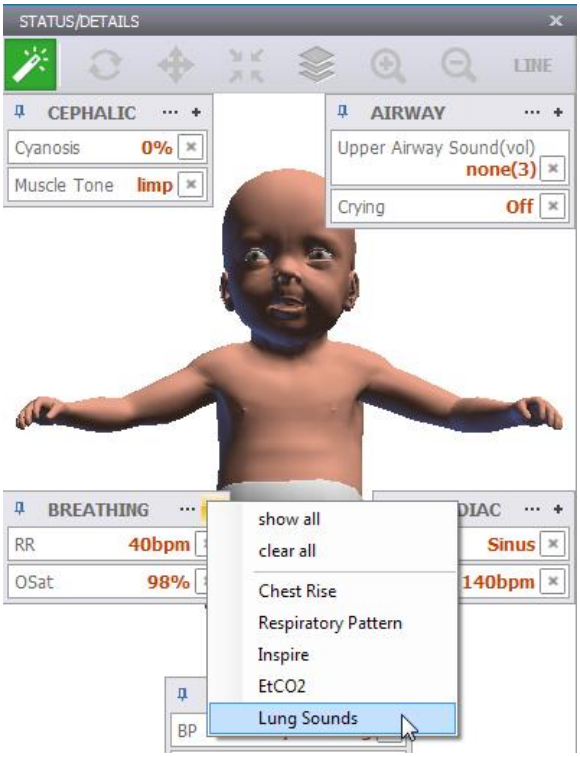
The “Body View” mode displays an interactive model of the simulator. The model is a representation of the simulator and its internal organs. The floating control boxes are used to monitor and change the vital signs just like in the “List View” mode.

Use the Body View controls to rotate, zoom, and re-center the model. Click the transparency button to view the model’s internal organs.

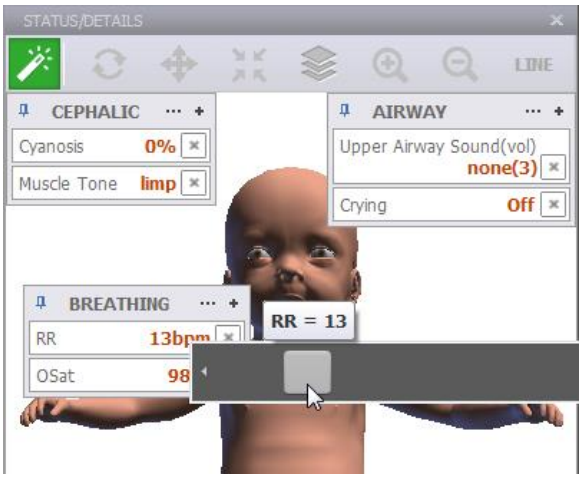


FLOATING CONTROLS

The floating controls are used to monitor and change the vital signs. The default layout displays commonly used vital signs controls. Click the + button to add controls to the floating window.

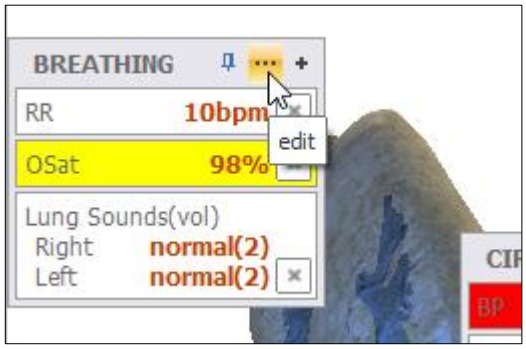


Enable the “instant apply” option and click the control to change the vital sign to a new value. Vital signs undergoing change blink yellow.

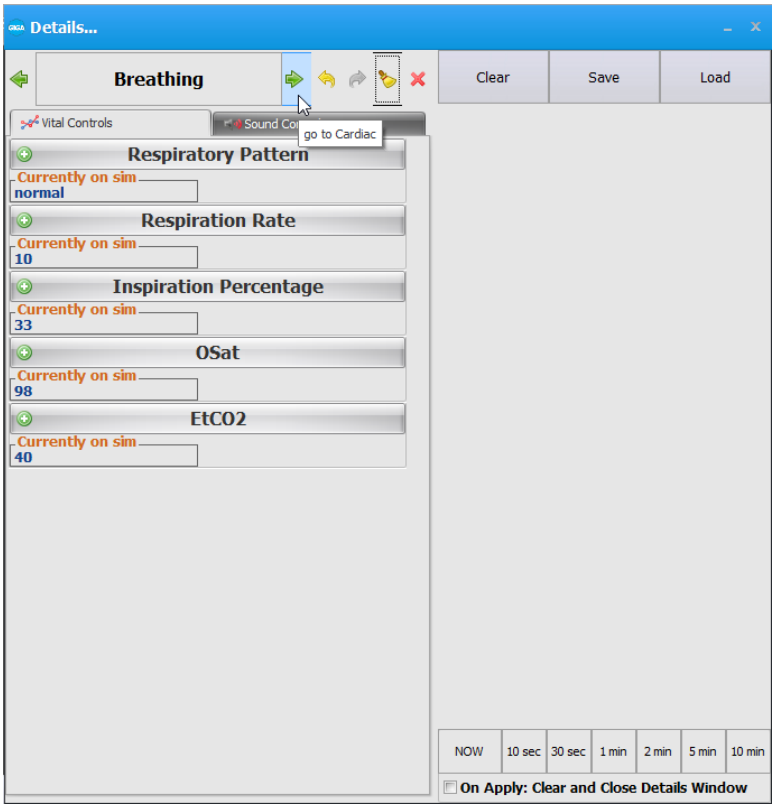


EXPANDED CONTROLS

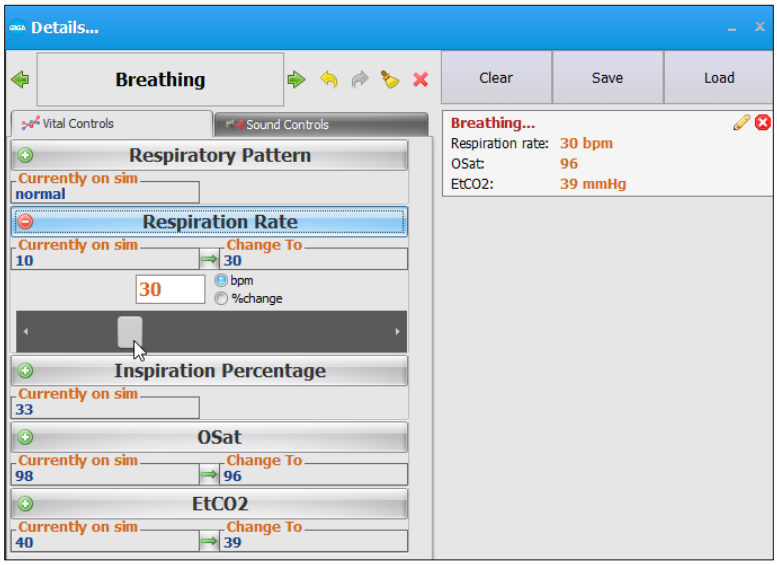
The expanded details view is used to tabulate a list of vital sign changes before applying them all at once. In addition, the Details list is used for creating palette items; a set of vital signs parameters stored in a single loadable item. Click the edit button to open the expanded Details list.



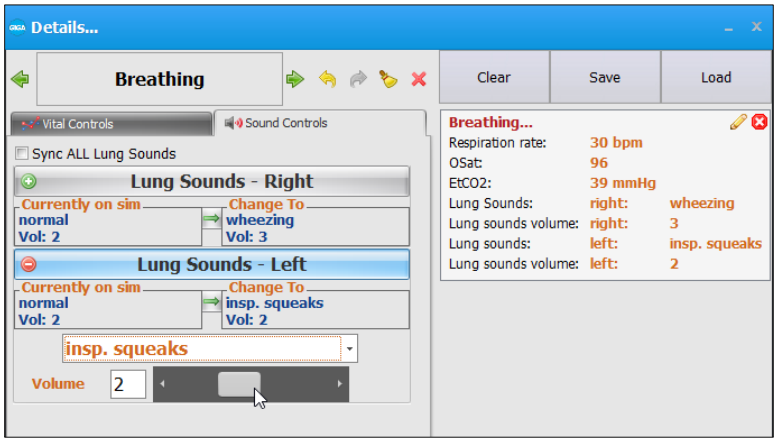
The vital signs controls are divided into categories. Click through the categories to view the controls available for the current simulator configuration.



Change vital sign value or state to add it to the Details list.

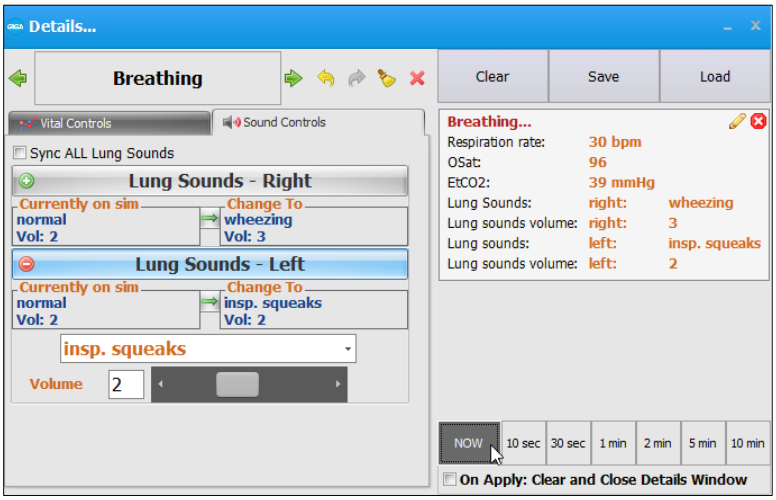


Click the sound controls tab to change the sound types for audible features (e.g. heart rate) and volume level.



APPLYING CHANGES

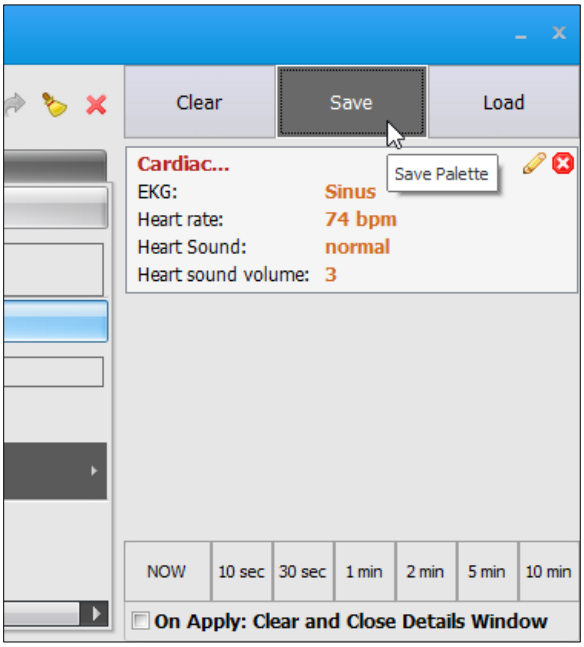
After the list of changes is created, click “NOW” to update the vital signs instantly. Alternatively, click a trending timer to update numerical vital sign parameters (e.g. heart rate, blood pressure) gradually.



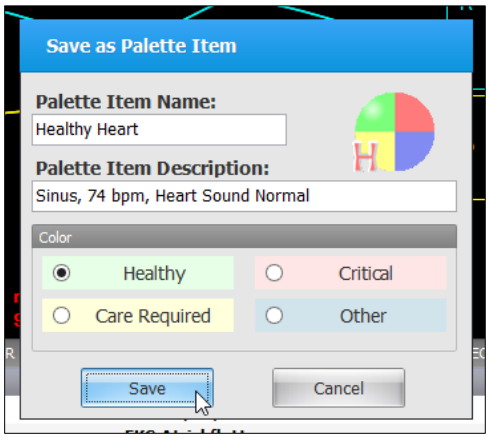
CREATING PALETTE ITEMS

A palette item stores one or more vital sign settings into a single loadable object. Use a palette item to update a set of vital signs quickly. For example, one palette item can be created to update all the cardiac parameters to a healthy state.

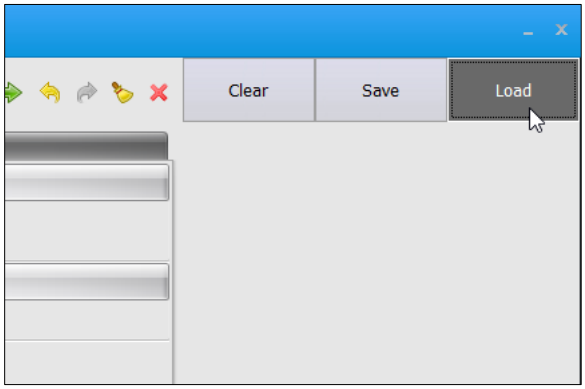
To create a new palette item, set the values for the desired vital signs parameters and click “Save”.



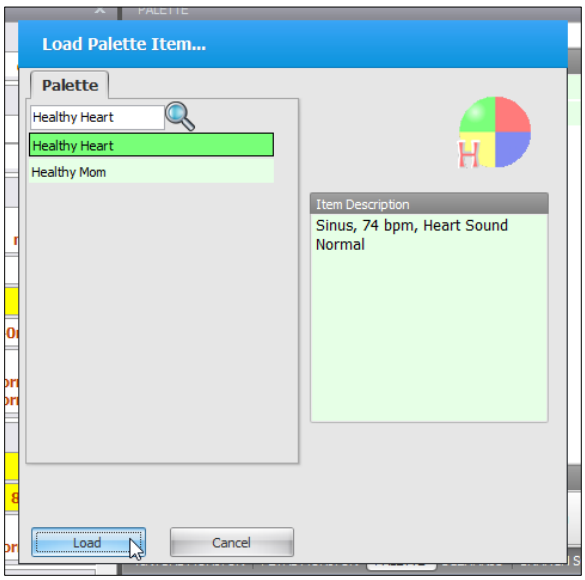
Enter a name for the palette, a description, and choose color code. Click “Save” to create the new palette Item. Palette items are stored in the active profile.



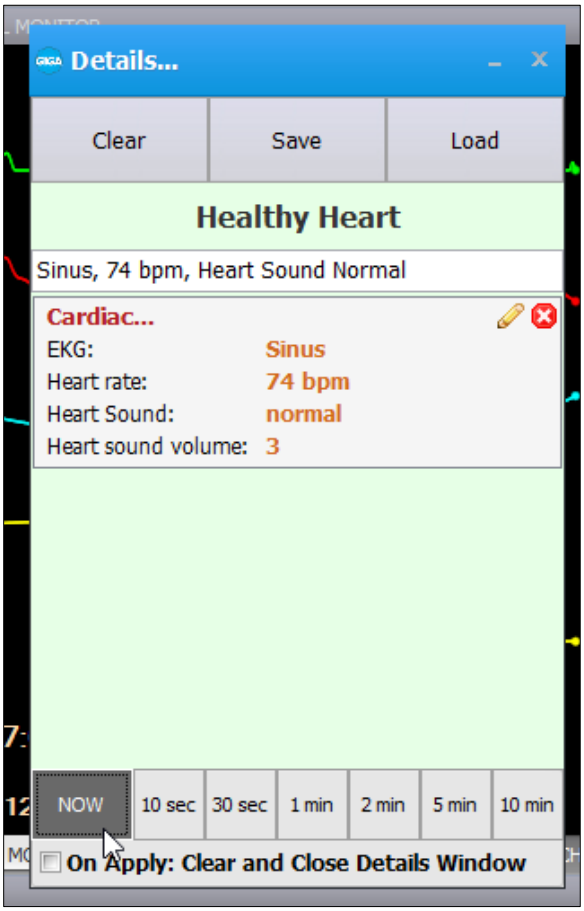
When the palette is needed, click the Load button to select the palette from the library.



Select the palette item from the “Load Palette Item” menu and click “Load”



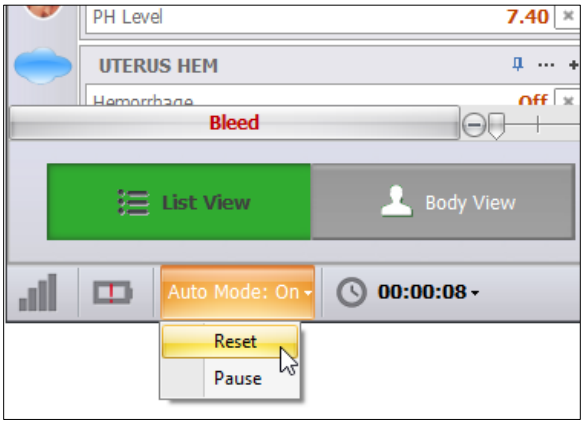
Click the apply option to submit the changes.



AUTOMATIC MODE CONTROLS

While operating in the Automatic Mode, GIGA adjusts the patient's vital signs automatically in response to caregiver participation, instructor input, and pharmacologic intervention. For example, if the heart rate is increased, GIGA will calculate a realistic response to the event and adjust the blood pressure values automatically. To enable the Automatic Mode option in the profiles menu, go to page 103.

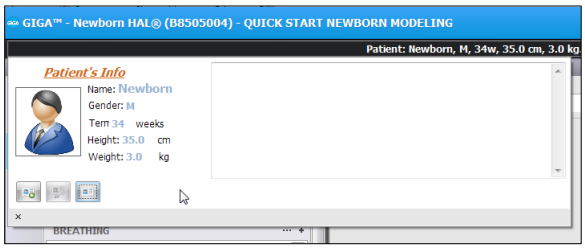
Click "Auto Mode" to pause the automatic changes. To return the patient to the initial state, click "Reset".



PATIENT PROFILE

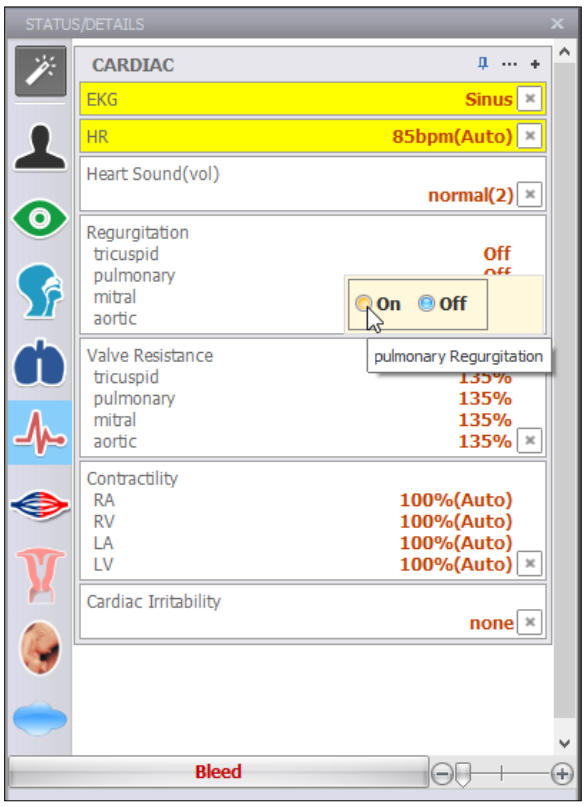
Patient files store general information such as weight, height, and age. The automatic mode factors the patient's weight as it adjusts related physiological parameters. GIGA includes several preprogrammed patients in the Quick Start Modeling profile. For more information on how to edit a patient profile, go to page 65.

Newborn is the default patient loaded when the Quick Start Modeling Profile is selected and it is an ideal candidate for most simulations. Click the patient information bar to view the patient's profile.



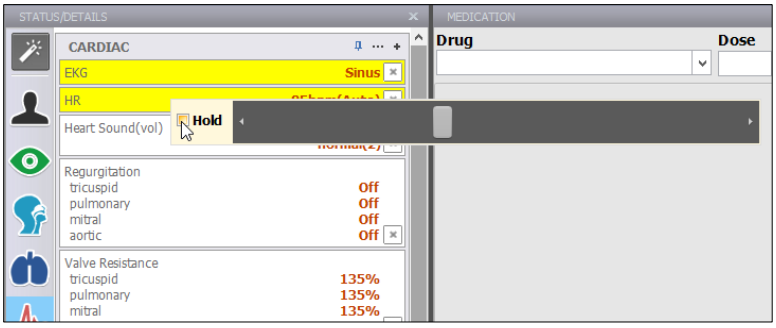
AUTOMATIC MODE CONTROLS

In the automatic mode, the Details panel includes additional vital sign parameters and control options not available in the Manual mode.



The “Hold” and “Auto” options are unique to the automatic mode. The “Auto Mode” adjusts vital sign controls with an (auto) suffix automatically.

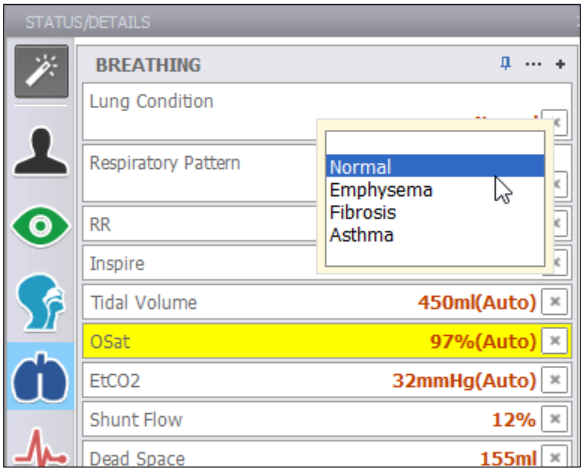
Checkmark “Hold” to prevent the Auto Mode from adjusting the value. Then change the vital sign to the new static value. The automatic mode will not change values set to hold. The “Auto Mode” will adjust all other controls set to “auto”.



Some changes are gradual and even if submitted for immediate change. The delay results from using a closed loop model that adjusts to the target values over time, rather than displaying a unique value that is unrelated to other parameters.

LUNG CONDITION

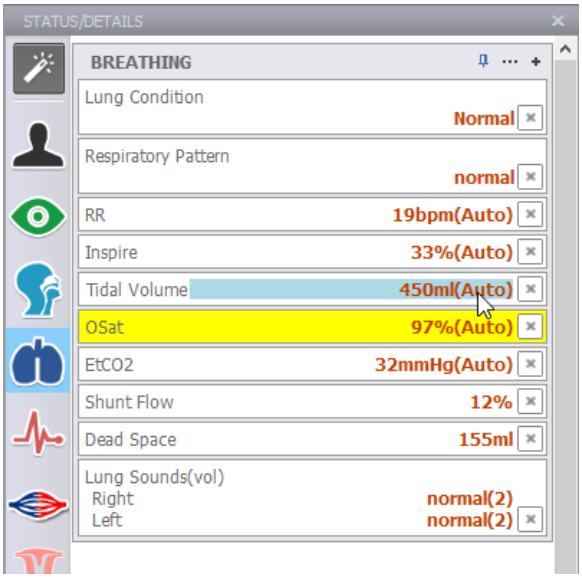
The lung condition parameter adjusts the shunt flow, dead space, airway resistance, and respiratory pattern automatically.



TIDAL VOLUME

In the automatic mode, a tidal volume of 450 m/L to 500 m/L is considered the normal level for an adult of average build.

The “auto mode” does not restore the respiratory rate if it is set to zero. Always remember to specify a new respiratory rate.



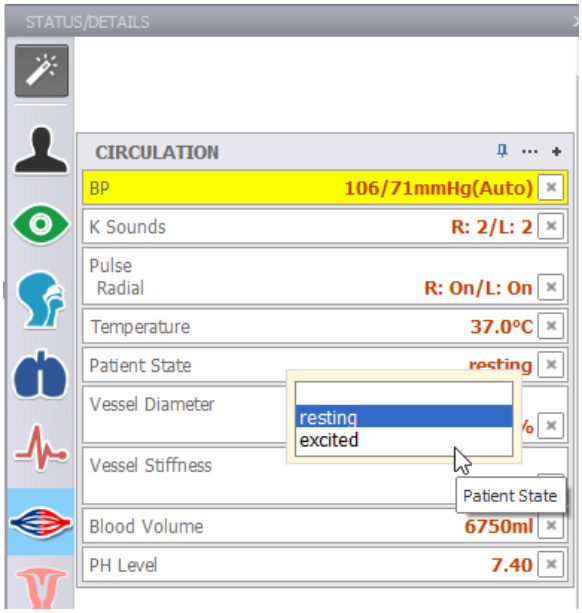
CIRCULATION

Each cardiac rhythm has a specific effect on the blood pressure waveforms. The pressure waveforms include ABP, CVP, PAWP, and Pulse. The blood pressure values are affected when any of the following parameters are changed:

- Vascular profiles: vessel diameter and vessel stiffness
- Heart Rate
- LV Contractility
- Total Blood Volume

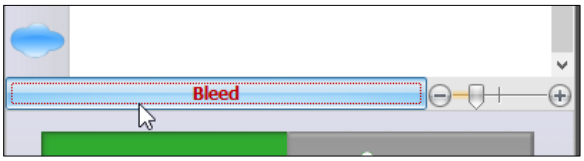
PATIENT STATUS

Set the patient status to “Excited” (after exercise) to increases heart rate, temperature, respiratory rate, tidal volume, O2, CO2 diffusion capacity, metabolic rate, and CO2 formation rate. Set the status to “resting” for a normal state.

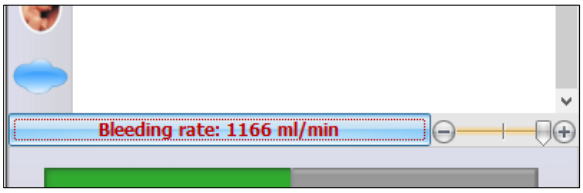


BLEED AND WOUND SIZE

The Bleed and Wound size options simulate blood loss virtually. To start the virtual bleeding click the “Bleed” button, and then adjust the bleeding rate using the “Wound Size” control.

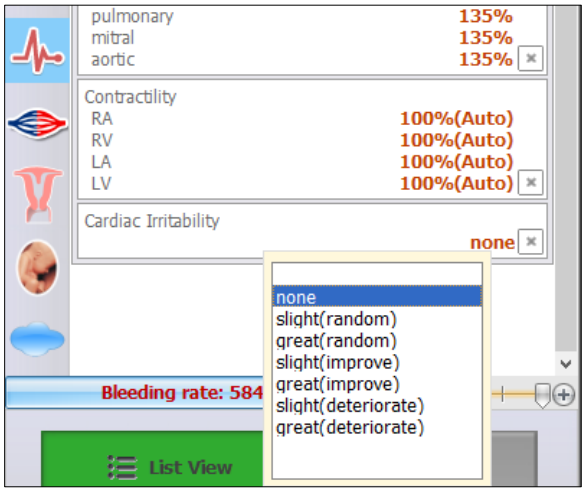


Once the bleeding function is activated, the Auto Mode will adjust the vital signs in response to the blood loss. If the provider does not intervene, the vital signs will deteriorate and myocardial ischemia will occur. For information on how to infuse blood to the model virtually, go to page 73.

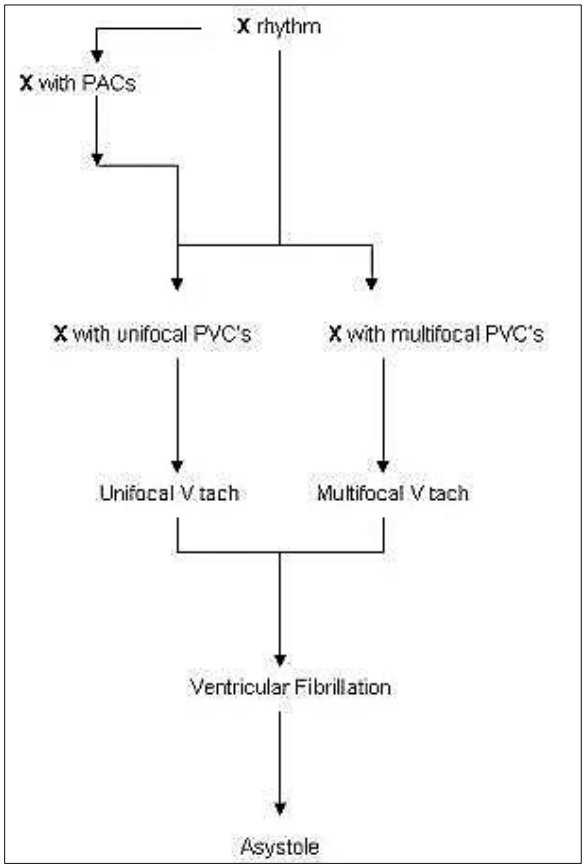


CARDIAC

The Cardiac irritability control adjusts the cardiac rhythms indirectly. Set the Cardiac Irritability to “improve” to move the current heart rhythm to normal sinus gradually. Alternatively, set the cardiac irritability to “deteriorate” to move the heart rhythm to ventricular fibrillation and eventually asystole.

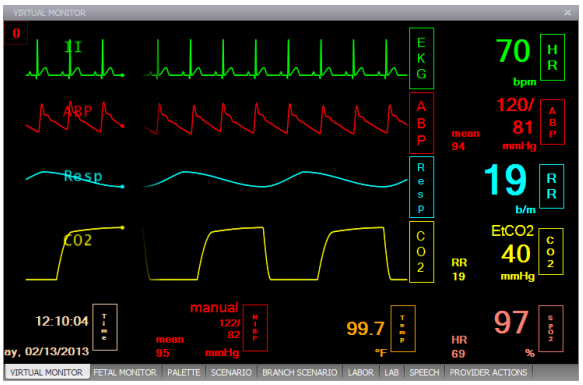


The progression of rhythms generally follows the pattern displayed in the figure below, where “X” represents normal sinus rhythm, multifocal atrial tachycardia, atrial flutter, atrial fibrillation, junctional rhythm, left or right bundle branch block, or atrio-ventricular block:



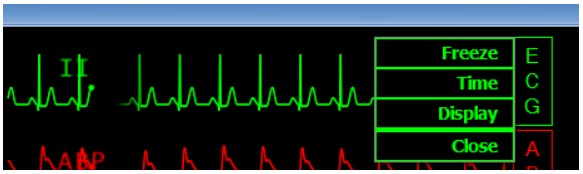
Virtual Monitors

The interactive virtual monitor tab (VM) displays the patient's vital signs information. The waveform and numerical parameters are interactive and the layout is fully customizable. If the VM tab is not available, go to page 103 to activate the virtual monitor add-on.



WAVEFORM MENU

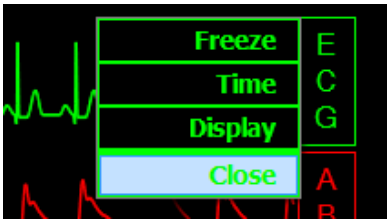
Click the waveform name to access the waveform options.



- Freeze - Pause the waveform reading. To unfreeze the selection, click the waveform menu and select "Go".
- Time - Set length of the ECG waveform. The options available are 5 seconds, 10 seconds, 15 seconds, and 20 seconds.
- Display - Open the waveform properties menu. Edit the waveform color, amplitude, intensity and scroll direction.

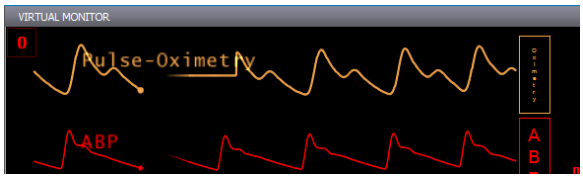
CHANGING THE WAVEFORM TYPE

To change the type of waveform displayed, click the waveform menu and select "close".



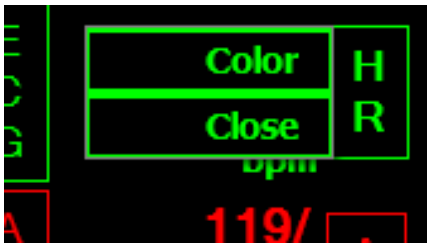
Click the empty waveform menu and select the new waveform type. While operating on the Automatic mode, the ECG option displays a sub menu for 12 individual leads.

The new waveform type is now displayed

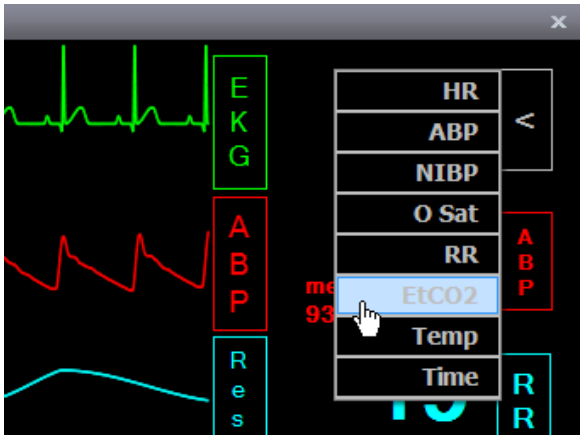


NUMERIC MENU

Click the numeric menu to access the numerical parameter options. To change the type of numerical parameter displayed, click the numeric menu and select “close”.

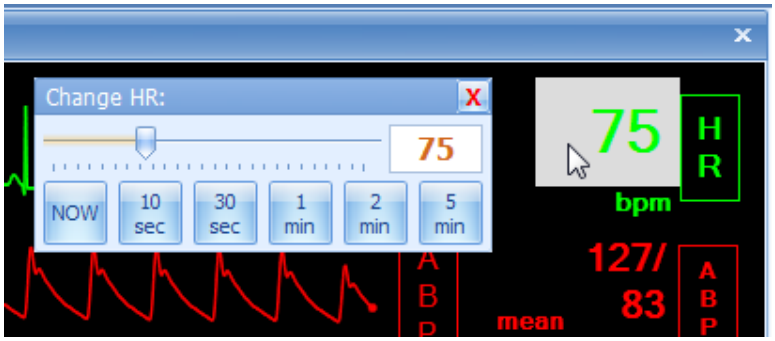


Click the empty numerical menu and select the new parameter type.



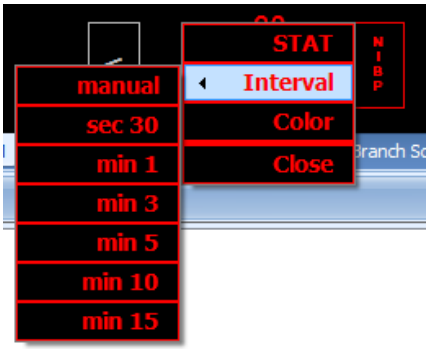
CHANGING VITAL SIGNS

Numerical parameters can be adjusted directly from the virtual monitor tab. Double-click the numerical parameter to open the floating control window. Adjust the parameter to the new value and submit the changes using the Apply NOW or trending options.



NONINVASIVE BLOOD PRESSURE

By default, the NIBP parameter does not update automatically. Click the NIBP menu and select “Stat” to refresh the reading. Alternatively, set a refresh interval to automate the stat process periodically.

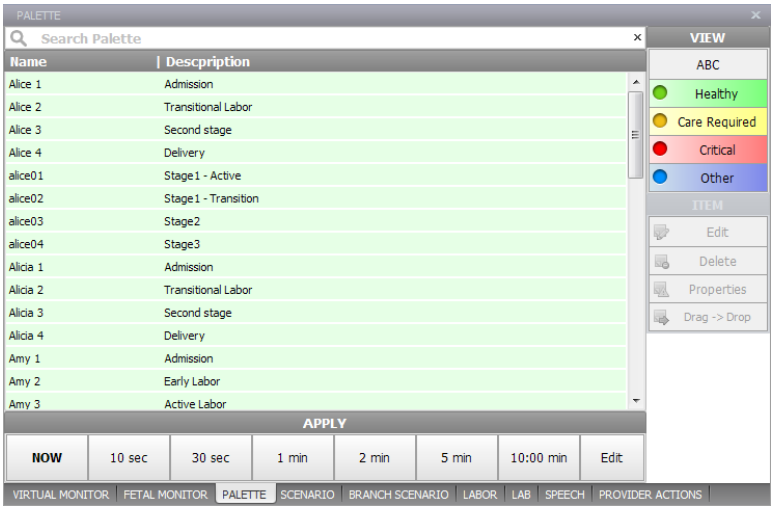


Palette

Use the Palette tab to sort, manage, and edit the palette items in the current profile. Each profile stores an independent library of palette items.

To modify the vital sign parameters programmed into a palette, select a palette and click the Edit button. After the changes are made using the Details tab, click the “Save as Palette” Item button., See the Tips on Palette Item and Scenario Creation section of the appendix for more information on customizing palettes.

Select a palette item from the list and click “Now” button to update the vital signs to the values stored in the palette item.

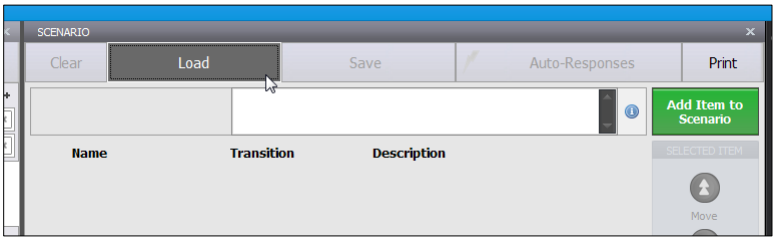


Scenarios

LINEAR SCENARIOS

GIGA includes several preprogrammed scenarios to simulate a variety of complications. All preprogrammed scenarios are included in the “Quick Start Profile”. Click File>Profile to switch to switch to a different profile without exiting the software.

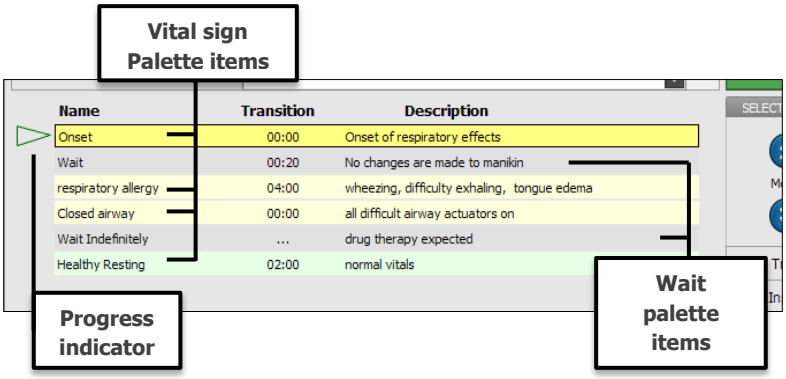
To use a preprogrammed scenario go to the Scenario tab and click “Load Scenario”.



The Load Scenario dialog box appears. Select a scenario and click Load. For a list of all the scenarios available, go to page 55 .

LINEAR SCENARIOS OVERVIEW

Scenarios automate changes to the patient’s condition to simulate an entire exercise without the need for manual input. A linear scenario is simply a playlist of vital signs palette items and wait palette items played back in succession.



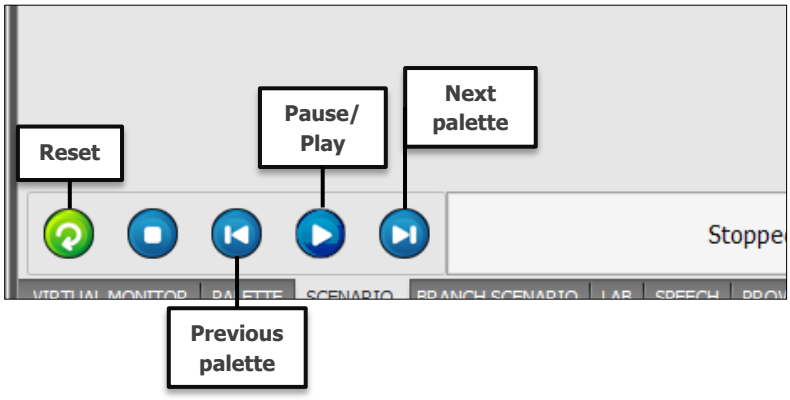
During the scenario, each vital signs palette updates the patient’s vital signs. The palette’s transition time trends the increase or decrease of numerical parameters (e.g. Heart rate, blood pressure) over seconds or minutes. In the figure below for example, the vital signs palette “Healthy Resting” is programmed with a transition time of 2 minutes. When the scenario reaches “Healthy Resting”, it will take 2 minutes for the vital signs to trend from the previous state to the values programmed within the palette.

Name	Transition	Description
Onset	00:00	Onset of respiratory effects
Wait	00:20	No changes are made to manikin
respiratory allergy	04:00	wheezing, difficulty exhaling, tongue edema
Closed airway	00:00	all difficult airway actuators on
Wait Indefinitely	...	drug therapy expected
Healthy Resting	02:00	normal vitals

Wait palettes do not update or change vital signs. Instead, wait palettes give the participant time to perform an action; this may be treatment in response to a complication or performing a standard assessment.

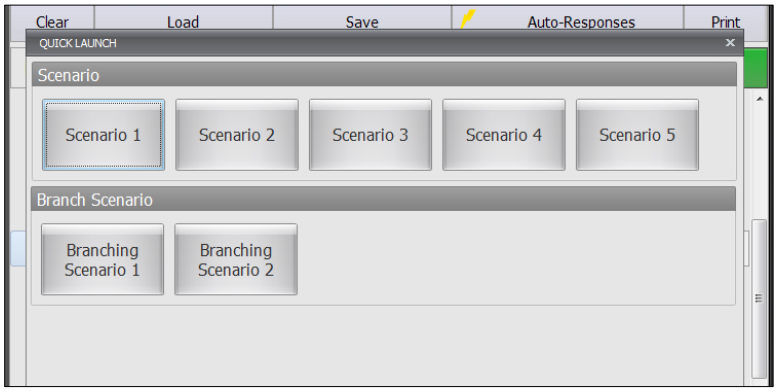
SCENARIO CONTROLS

Scenarios are controlled using the playback buttons at the bottom of the tab. Intuitively, the click play, stop, pause, or next as necessary during the scenario. Click next to proceed to the next palette from a “wait indefinitely” palette.



SCENARIO QUICK LAUNCH

Use the scenario Quick Launch tab to start a scenario with a single click. The Quick Launch tab displays all the scenarios saved in the active profile.



CREATING A NEW LINEAR SCENARIO

Build new scenarios to expand the number of exercises available in a training program. The general process of creating a new linear scenario is the following:

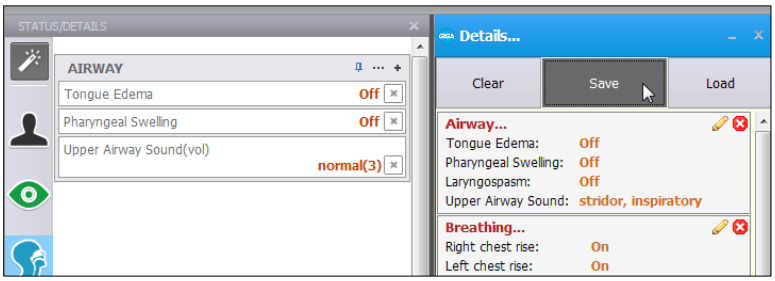
- Create a vital sign palette item for each state in the scenario
- Add the vital signs palettes and wait times to the scenario
- Play the scenario
- Modify and edit palettes
- Save the scenario

CREATING PALETTE ITEMS

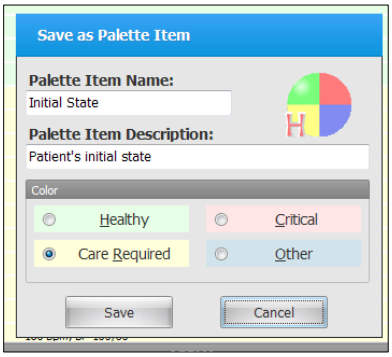
The first step is to create several vital sign palette items using the Details tab. Each palette item represents a physiological state during the scenario.

Program the first palette item to be used as the scenario’s starting point. Set values for all the physiological parameters, sound types, and volumes. This ensures that when the scenario begins no vital signs from a previous state will inadvertently carry into the scenario exercise.

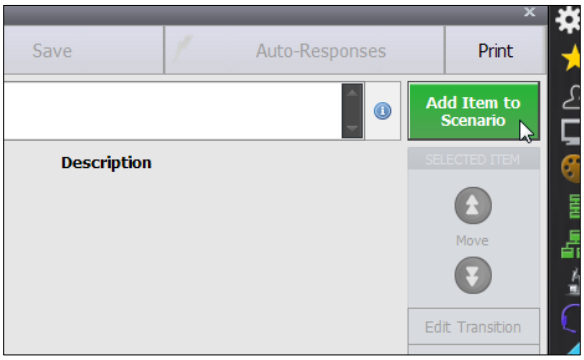
Using the list view controls, select the vital signs parameters for the starting physiological state in the scenario. Click the “Save as Palette Item” button to create the new palette.



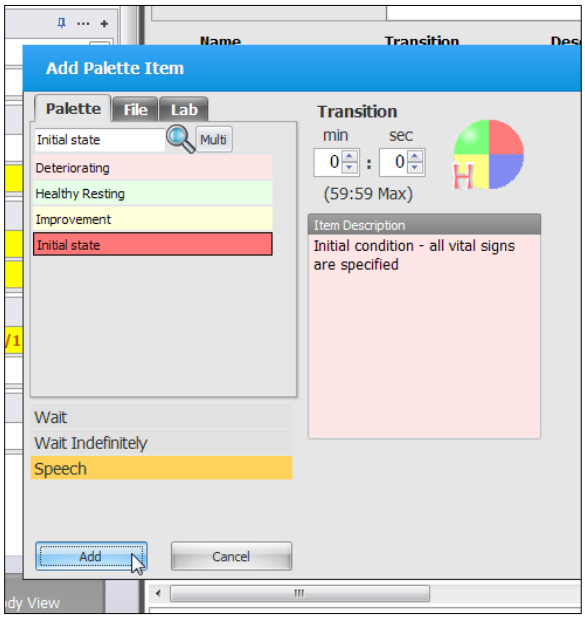
The “Save as Palette Item” dialog box is displayed. Type in the palette item name and a brief description; assign a color tag and click “Save”.



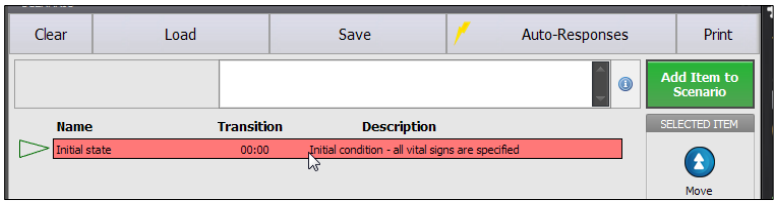
Create the next palette item with only those vital sign parameters that are relevant to the second stage in the patient’s condition. Repeat this process to create palettes for the third and final stage in the scenario. Remember to program only the values that require change. After all the individual vital sign palettes are created, go to the “Scenario” tab and click “Add to Scenario”.



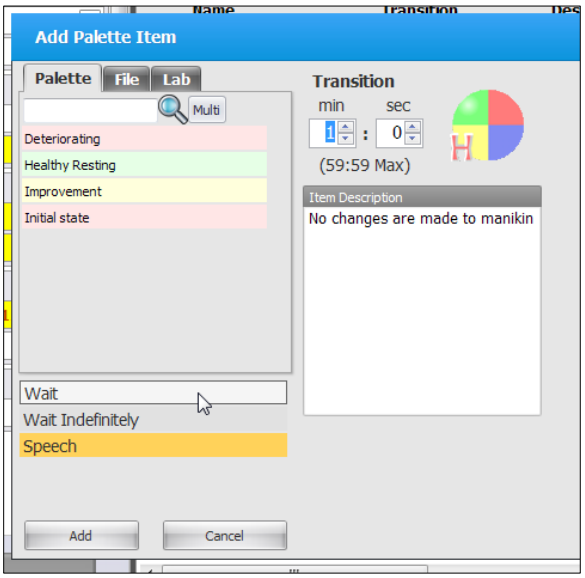
The Add Palette item menu displayed. Select the vital sign palette programmed to be first state in the scenario. Enter 0 min 0 sec for the transition time, so the initial vital signs are applied immediately. Click “Add” to add the palette to the scenario.



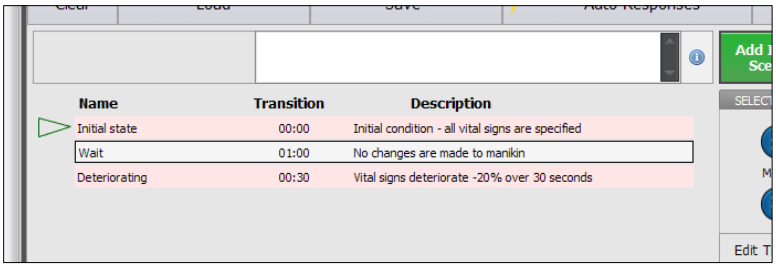
The first palette is now added. Click “Add Palette to Scenario” button again to add more vital sign palettes and wait palette items.



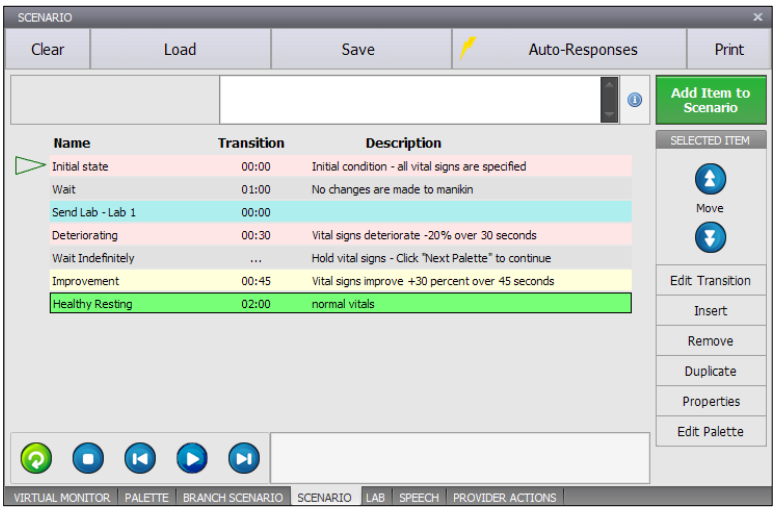
A “Wait” item maintains vital signs values steady for the transition time allotted. Insert a “wait” item to give the provider time to perform an action or an assessment. For example, auscultating blood pressure or gathering general information about the patient. Alternatively, add “Wait Indefinitely” to hold the vital signs until the “next item” button is clicked from the playback controls.



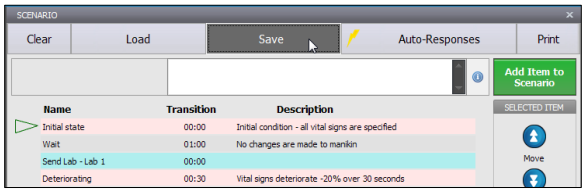
The wait palette item is now added.



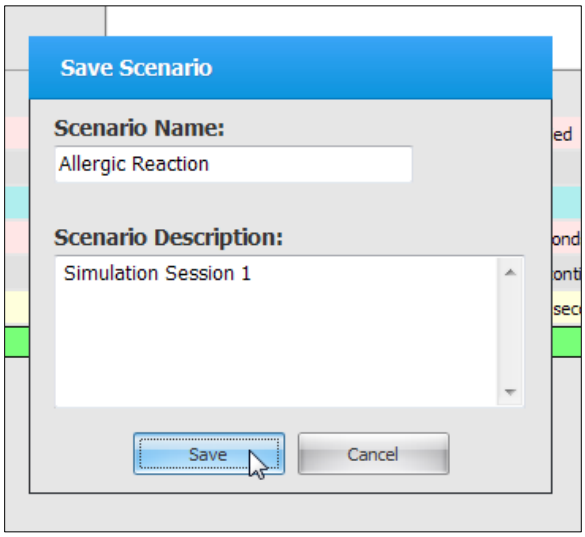
Add more palette items and then use the “Selected Item” menu to make any changes.



Click “Save Scenario” to store the scenario in the current profile for later use.



Type in a name and a description for the new scenario and click Save.



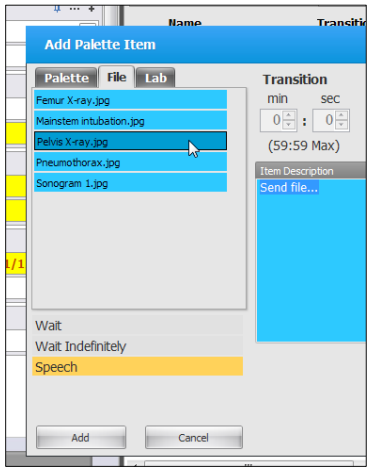
ADDITIONAL SCENARIO FEATURES

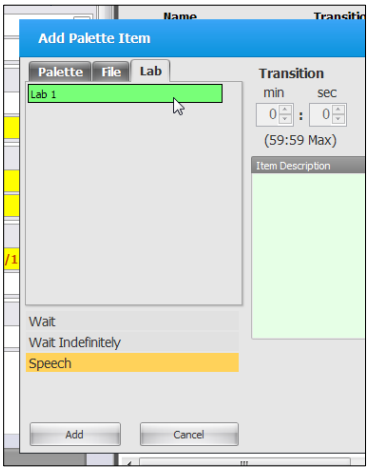
Incorporate the following features into a scenario for added realism.

- Auto responses –move onto the next palette item automatically when virtual electric therapy is detected
- File sharing and lab reports – Send lab reports to the virtual monitor computer
- Speech – add phrases or custom speech

FILE SHARING AND LAB REPORTS

The scenario can also automate the distribution of shared files and labs. Click “Add to scenario”, and then use the “File” and “Lab” tabs to select from available documents. For more information making files available for file sharing, go to page 111. To create a new lab report, go to page 57.

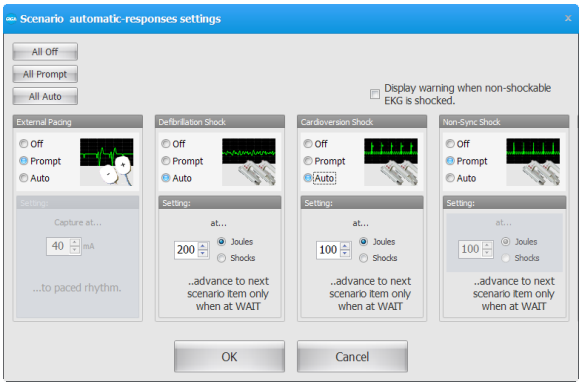




AUTO RESPONSES

The scenario auto-response settings move the scenario to the next palette when electrical therapy is detected. Electrical therapy can be applied by the facilitator via Virtual Shock panel or by the care provider using real medical equipment if the simulator supports it.

Auto-responses advance to the next palette if the virtual shock is applied while a “wait indefinitely” palette is playing and the heart rhythm is “shockable”.

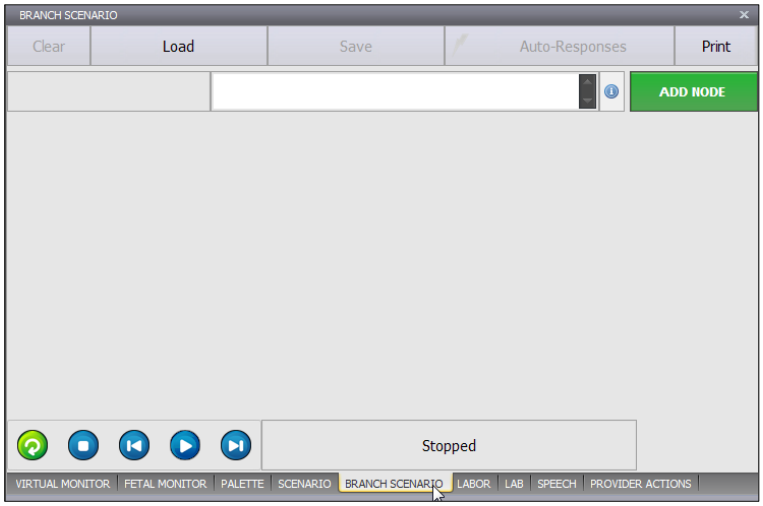


The three response options are defined below:

- Off - The scenario does not respond to the electric therapy.
- Prompt - The software detects the electrical therapy and prompts the user for approval before advancing to the next palette.
- Auto – Advances to the next palette automatically only if the electrical therapy meets the threshold specified

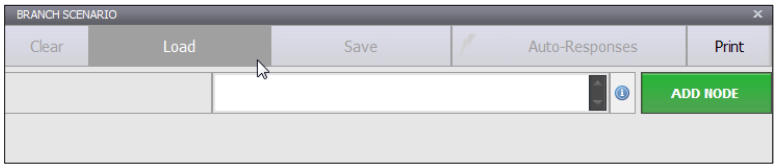
Branching Scenarios

Unlike linear scenarios, which move from one palette to the next, the trajectory of a branching scenario can change in response to the participant's actions. Click the "Branching scenario" tab to access the branching scenario window.



BRANCHING SCENARIO SCREEN

Use the panel buttons to clear, load, and save new scenarios, or to switch from branching to linear scenarios. Click "Load Scenario" to access the preprogrammed branched scenarios in the current profile.



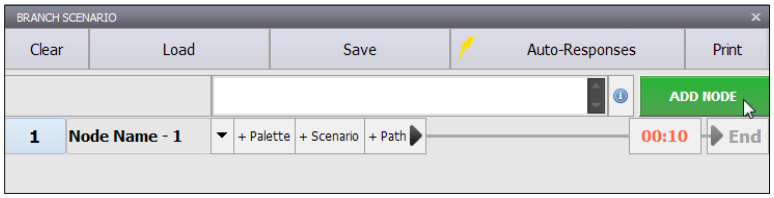
CREATING A NEW BRANCHING SCENARIO

The process of creating a new branching scenario is the following:

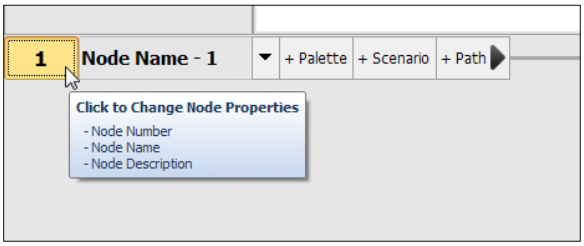
- Add nodes
- Add palettes or scenarios to each node
- Add paths to nodes that require provider action
- Create key events to alter the progress and trajectory of the nodes within the scenario

ADDING NODES

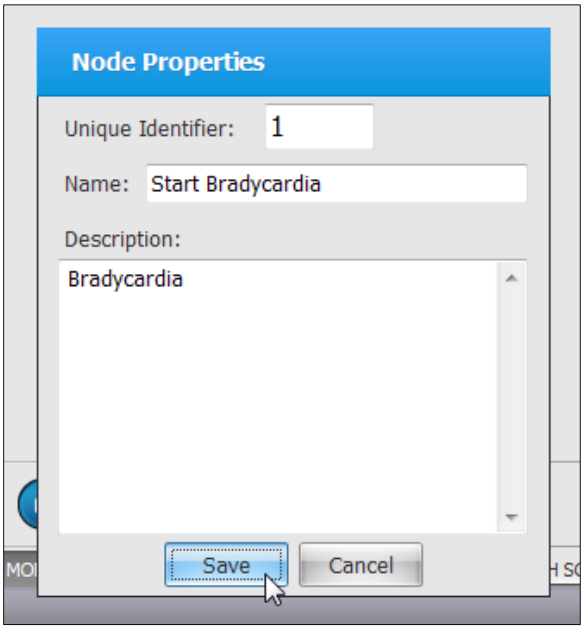
A branching scenario consists of several "Nodes". Each node is preconfigured to run a normal scenario or a series of palettes simulating a specific condition or effect. Click the "Add node" button to create a new node for the first set of vital signs.



Click the node's identifier number to edit the node properties.

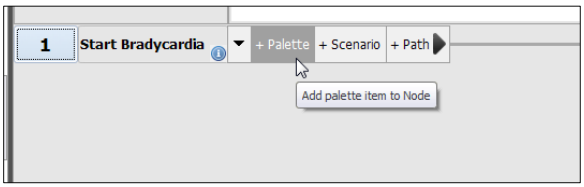


Enter a name for the node and description and then click "**Save".**

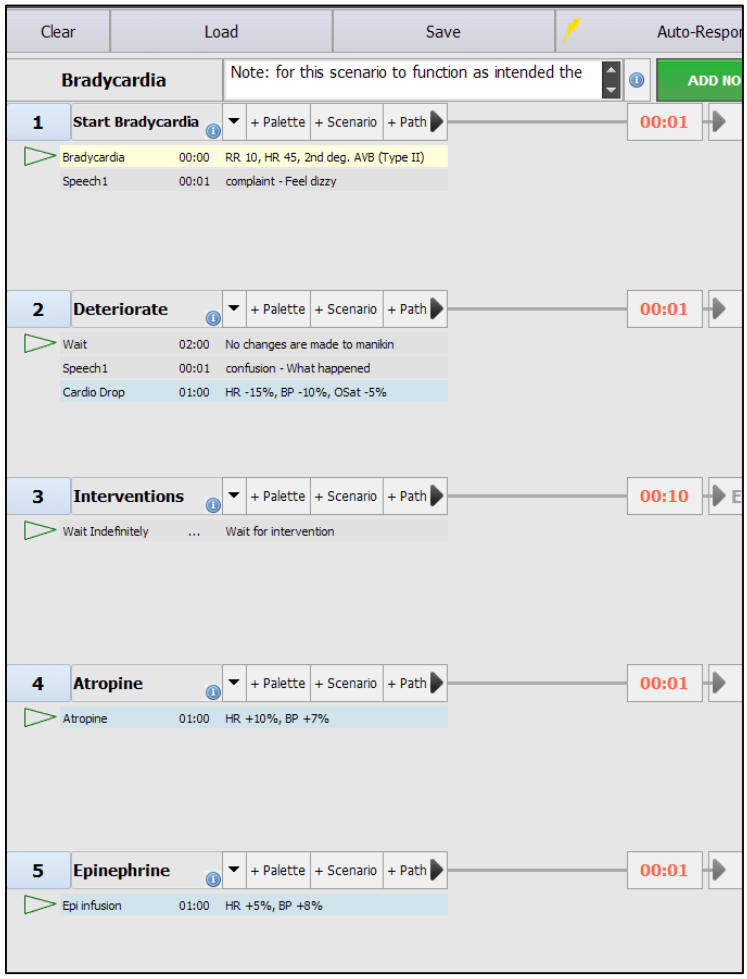


ADDING PALETTES OR SCENARIOS TO A NODE

Click "Add Item" to add palette items or "Add Scenario" to add full scenarios to the node.

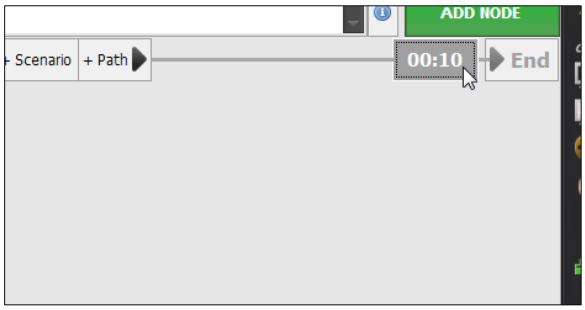


Add more nodes each with palette items to simulate every stage in the scenario. In this example, several nodes simulate the effects of medications that maybe administered to the patient by the provider. The first two nodes simulate the complication [1] Start Bradycardia, [2] Deteriorate. The following nodes: [3] Interventions, [4] Atropine, [5] Epinephrine, [6] Dopamine and [7] Pace are activated only when the provider administers the applicable medication or electrical therapy. Each node is programmed with palettes that simulate the effect described.

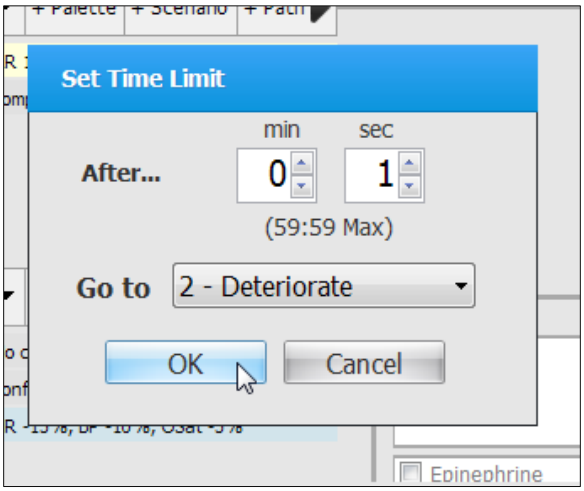


ADDING PATHS

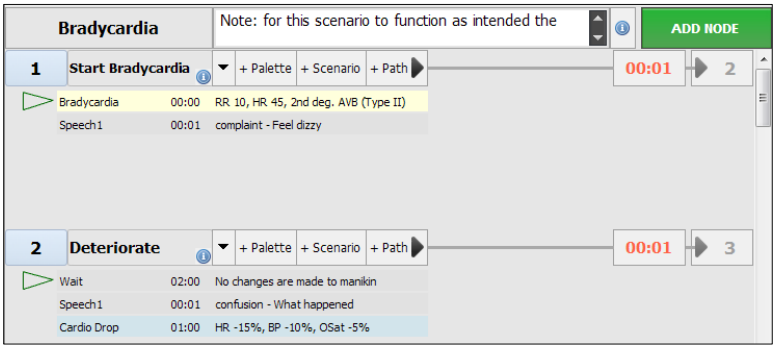
A path refers to the trajectory from one node to another after the last palette in the node expires. The scenario will move on to the node indicated by the arrow. Click on the “Time Limit” icon to modify the “Go To” point for the default path.



In this example, the first node must move to “Node 2 - Deteriorate” after the time limit expires. Click “OK” to save the changes.

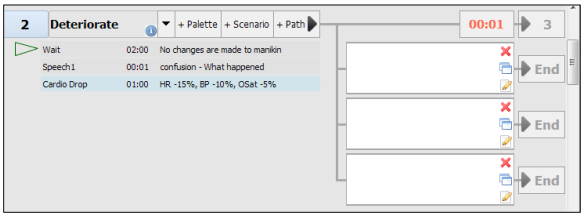


Node 1 is now configured to proceed to Node 2 as indicated by the arrow.

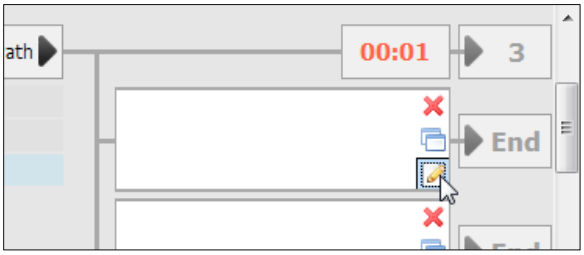


KEY EVENTS

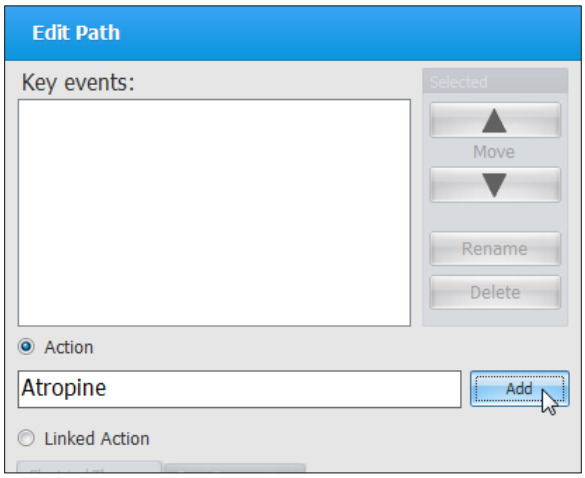
Key events activate alternate paths in a node. The alternate paths are used to change the trajectory of the scenario depending the participant’s actions. To add a key event to a node, first add the additional paths.



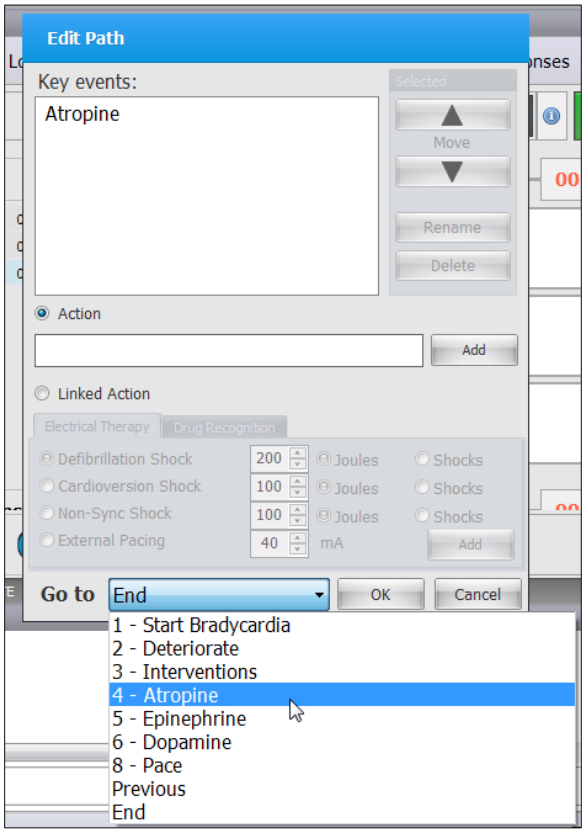
Click the “Edit path” icon to program key events for the node.



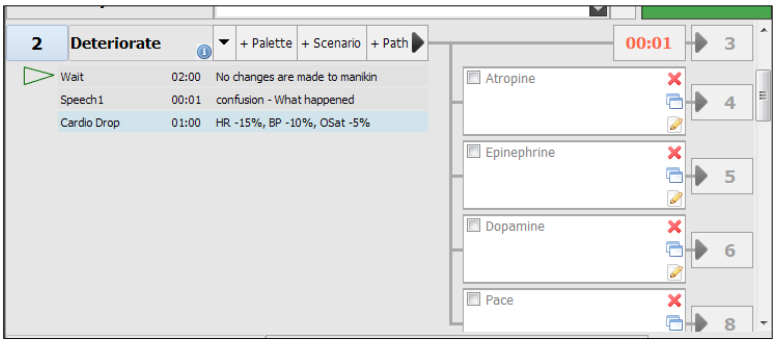
A key event is the action expected by the participant. Type a name for the action and then click “Add”.



After the action is added to the Key Events list, assign the node that this action will move the scenario to using the “Go to” menu. Click “OK” to save changes.



In the figure below, node 2 is configured with four alternate paths. Once the provider performs any one of the actions listed as key events, checkmark the key event to activate the alternate path.

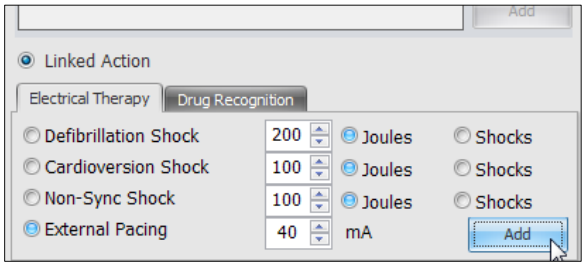


SAMPLE BRANCH SCENARIO DIAGRAM

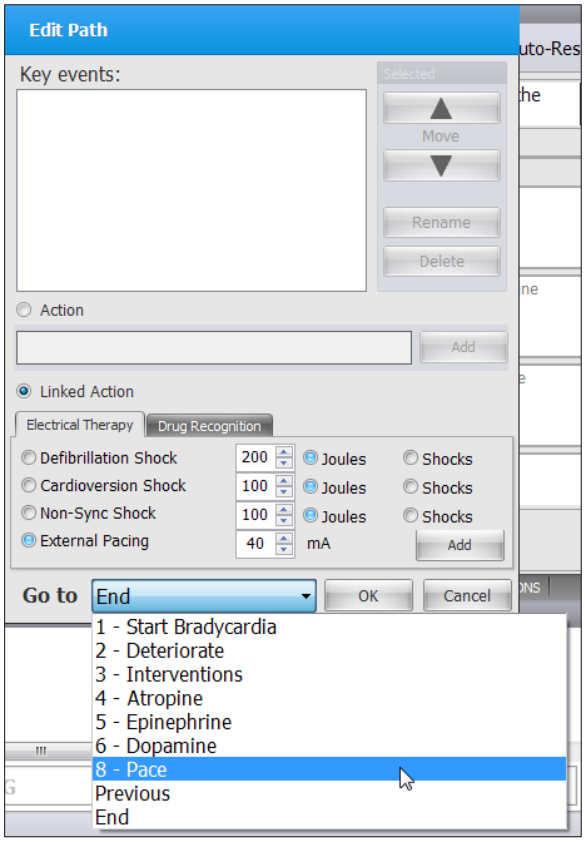
Node	Node Name	Description
1	Start bradycardia	Node vital signs palettes simulate bradycardia. Go to node 2.
2	Deteriorate	Vital signs palettes deteriorate the patient's condition by -15%. Care provider has 4 options. Each option (key event) moves the scenario to the node specified. If no action is taken, the scenario will move to node 3 at the end of the time limit.
		Key event
		Atropine **Node 4** | Epinephrine **Node 5** | Dopamine **Node 6** | Pace **Node 7**
3	Intervention	Wait indefinitely, vital signs are on hold. Provider is to intervene again.
		Key event
		Atropine **Node 4** | Epinephrine **Node 5** | Dopamine **Node 6** | Pace **Node 7**
4	Atropine	Node vital signs palettes simulate the response to atropine. **Time limit:** Go to node 3 after 1 minute.
5	Epinephrine	Node vital signs palettes simulate the response to epinephrine. **Time limit:** Go to node 3 after 1 minute.
6	Dopamine	Node vital signs palettes simulate the response to dopamine. **Time limit:** Go to node 3 after 1 minute.
7	Pace	Vital signs simulate the effect of pacing. Scenario ends.

LINKED ACTIONS

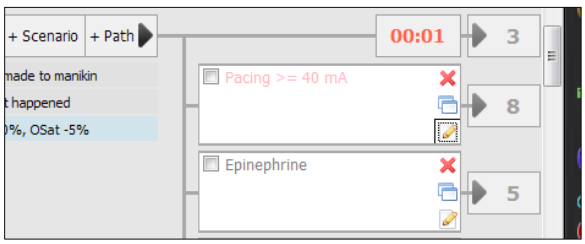
A “Linked Action - key event” triggers an alternate path when electrical therapy is detected. Click the Linked Action radio button and select the available actions. Then, set the electrical therapy thresholds or number of shocks require to trigger the action. Click “add” to create the key event.



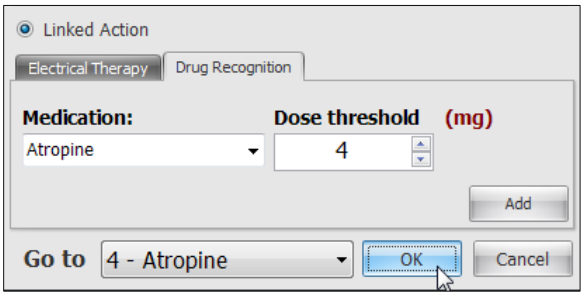
Set the “Go to node” from the drop down and click OK to save the changes.



The key event is now programmed to move the scenario to node 8 if pacing is detected.



The “Linked Action” model medication tab is exclusive to the automatic mode. Program the medication linked action to trigger an alternate path when the system detects that the specific medication has been administered to the simulator.



FACTORY PRESET SCENARIOS

MANUAL MODE

These scenarios in the manual mode are found in the Quick Start Newborn profile. There are eleven linear scenarios and no branching scenarios. Detailed flowcharts for each scenario are included in the appendix.

Scenario Name	Scenario Description
Linear	
Alice's Baby	Healthy baby
Asphyxia Scn	Baby has an asphyxia attack and the providers need to give ventilations to help bring back the vitals to a healthy state.
Beth's (Donna's) Baby	Baby is born with a mild asphyxia that needs attention. Once ventilations is started the baby's vitals go to a healthy state.
Cynthia's Baby	Male infant with central cyanosis, limp, flaccid and requires immediate resuscitation. No spontaneous movement of right arm is noted. Stat CXR reveals a fractured right clavicle and right pneumothorax.
Elaine's Baby	This baby is born with moderate asphyxia, and will require CPR and oxygen to bring the vitals to a healthy state.
Francine's Baby	This baby was born through a C-Section and is responsive but need some attention, after a while all vitals go to a healthy state.
Gloria's Baby	This baby is born with mild asphyxia, but no matter how good the interventions are, this disastrous intrapartum complication results in neonatal death.
Helen's (Irene's) Baby	This baby is born with a severe asphyxia that has to be treated emmidiately, after ventilations and EPI have been given, the baby's vitals go towards a good outcome.
MAS	Meconium aspiration syndrome
RDS	Newborn with mild Respiratory Distress
TTN	Transient Tachypnea of the Newborn

AUTOMATIC MODE

These scenarios in the Automatic mode are found in the Meds profile. There are three linear scenarios and no branching scenarios. All shown are for a premature infant patient.

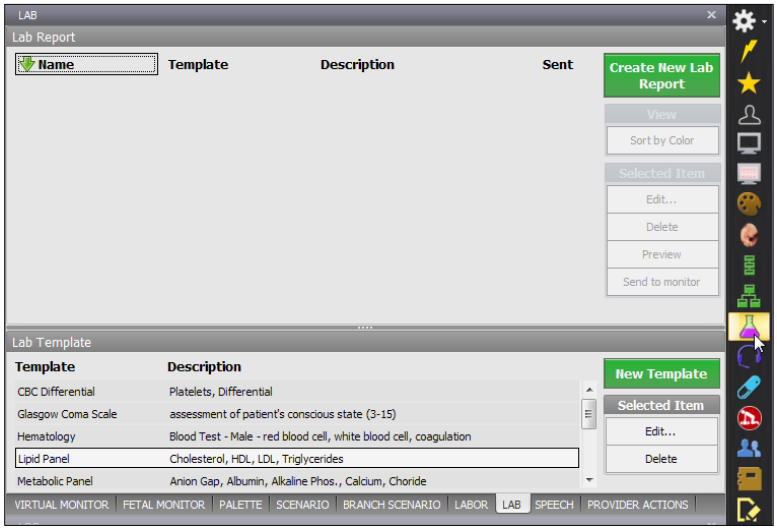
Scenario Name	Scenario Description
Linear	
Adenosine-OD	Asystole -> severe AVB, asthma, exited
Adenosine-SD	Asystole -> Sinus
Adenosine-UD	Asystole -> previous rhythm

The scenarios in the Automatic mode are found in the Quick Start Newborn Modeling profile. There are eight linear scenarios and one branching scenario. All shown are for a premature infant patient.

Scenario Name	Scenario Description
Linear	
Variations A	
Uterine Rupture A	
Shoulder Dystocia A	
Preeclampsia A	
Healthy Baby B	Baby was delivered SVD and is fairly vigorous.
Healthy Baby A	Baby is vigorous and earns good APGARS.
Faye Baby	
Embolism Baby A	
Branching	
Variations Branching	

Lab

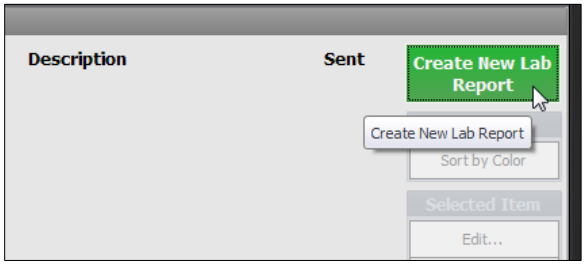
Use the Lab tab to create mock laboratory tests results to aid the participants during simulation. In addition, create new laboratory templates to supplement different types of scenarios. Once a laboratory report is created, send the file to the virtual monitor screen for the provider access during the exercise.



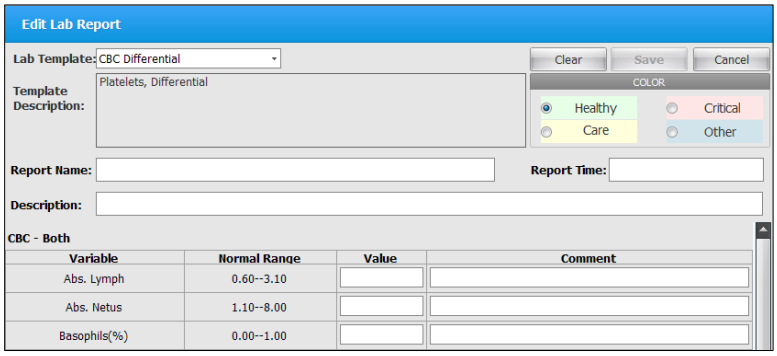
PREPARING A LAB REPORT

To create a new lab report with mock test results:

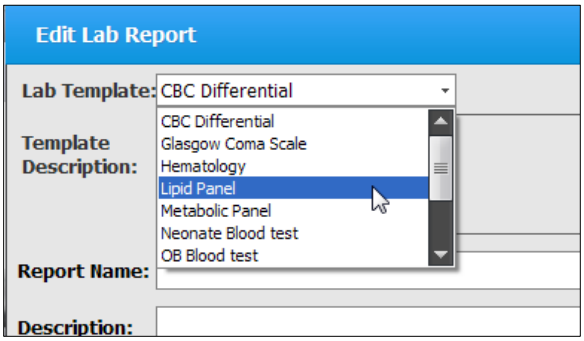
5. Click “Create a New Lab Report” on the right panel.



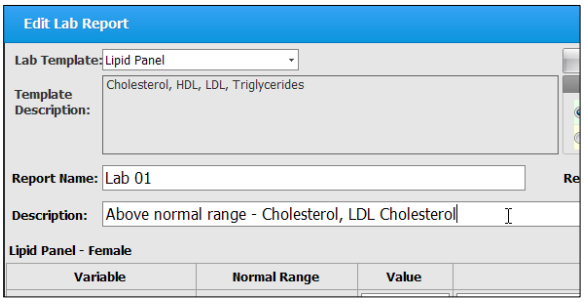
The “Edit Lab Report” window is displayed.



6. Select a “Lab Template” from the drop down menu.

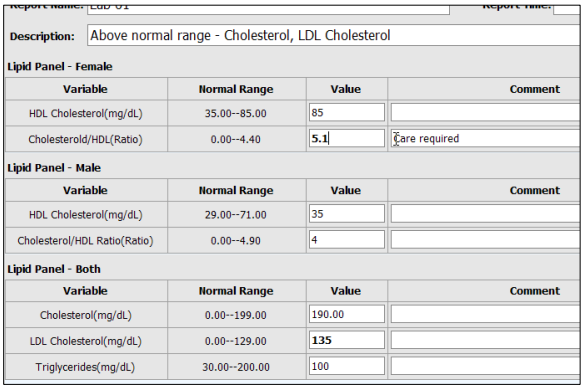


7. Enter a report name, a report time, and a description. In addition, select a color tag for the lab report on the right panel. Color tags aid the sorting of lab reports on the report list window.

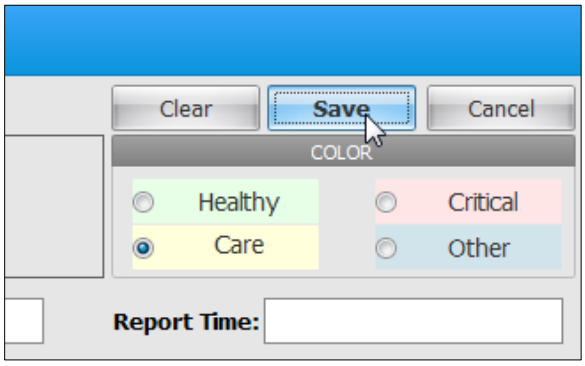


8. Enter the test results in the “Value” column. Include any comments associated with the test performed.

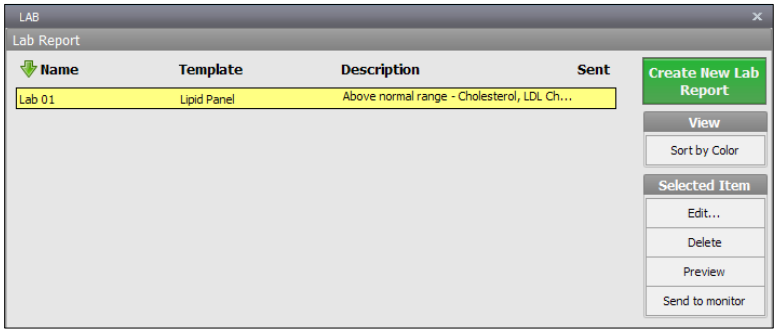
Lab result values for each of the preprogrammed scenarios in the Quick Start NEWBORN HAL profile are included in the NEWBORN HAL Workbook.



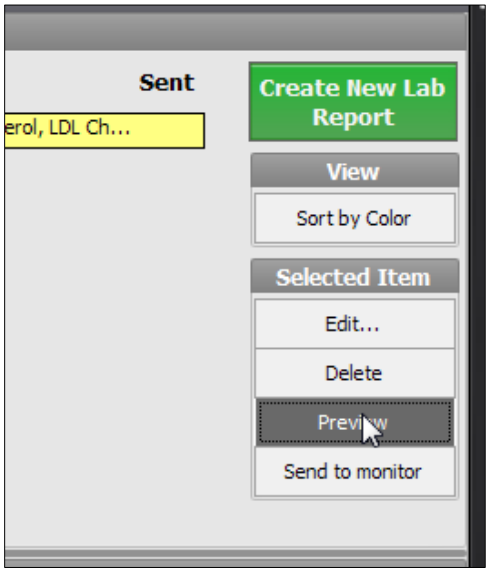
9. Click “Save” to create the lab report.



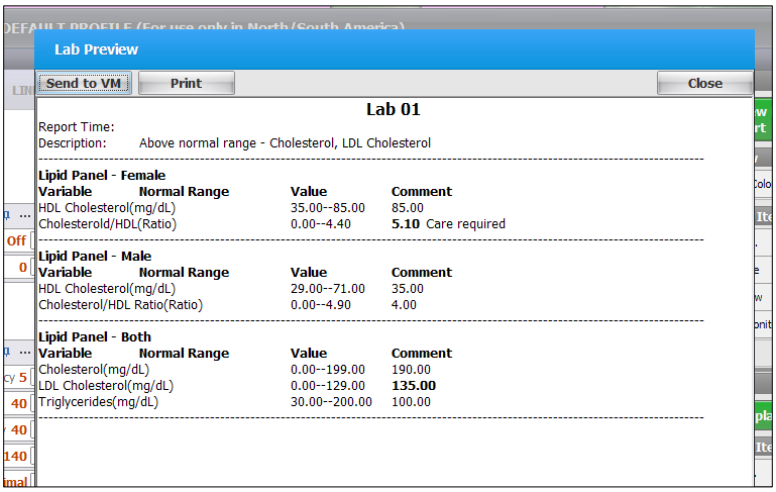
The newly created lab report is now listed in the “Lab Reports” section. Sort lab reports by name, template, description, or color tag.



10. Click “Preview” to review the final lab report.



The preview window displays the test results how the provider will see them on the virtual monitor screen. If the computer is connected to a printer, click PRINT to create a hard copy.

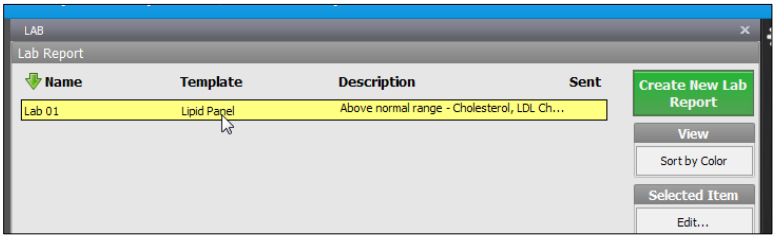


SEND TO MONITOR

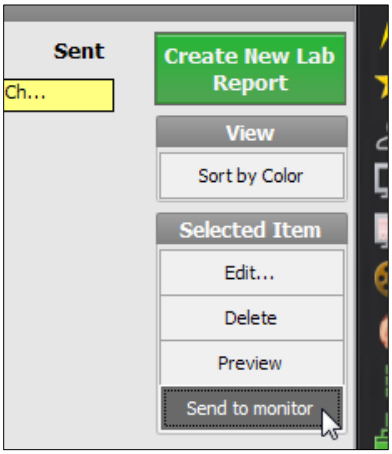
Send the completed lab report to the virtual monitor screen to assist the care provider.

To transfer the lab report to the virtual monitor screen:

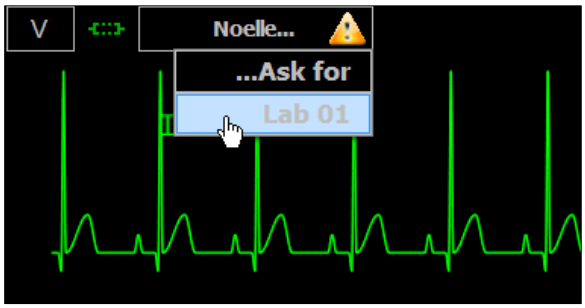
1. First, select the report from the lab reports list.



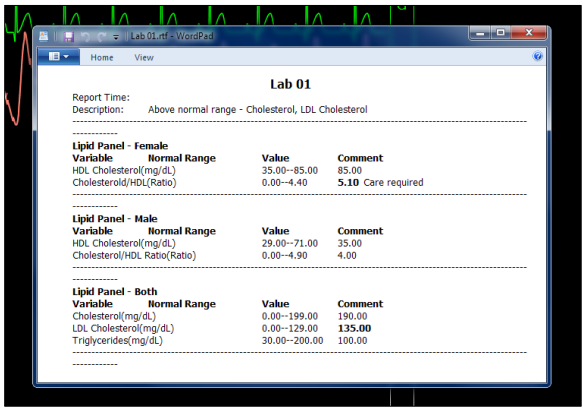
2. Click “Send to Monitor” button to transfer the lab report to the virtual monitor.



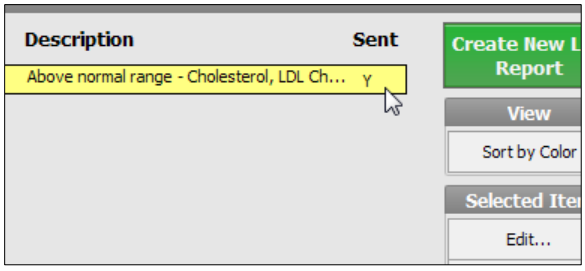
3. An exclamation icon notifies the provider a file is ready for access on the Gaumard Monitors. Instruct the participant to click the patient menu drop down and select the lab report.



4. The lab report opens using the system's default application.



5. The letter Y represents a shared document. Click the "Stop Sharing button" on the right panel to remove the lab report items from the Gaumard Monitors menu.



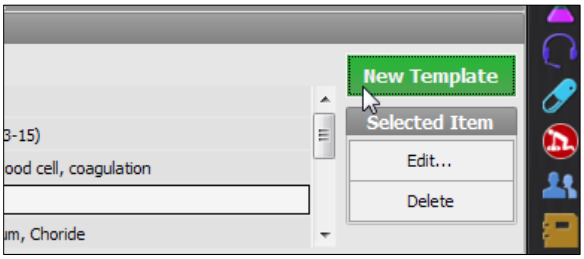
An editable copy of the lab report is stored inside the Gaumard_UI folder on the computer's home screen. Go to page 111 for information on how to access other files from the Gaumard Monitor screen.

CREATING A LAB TEMPLATE

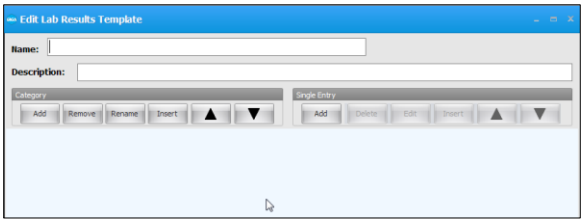
Build new lab templates to supplement new scenarios.

To create a new laboratory test template:

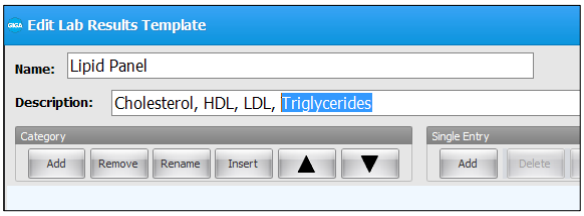
1. Navigate to the bottom of the tab and click “New Template”.



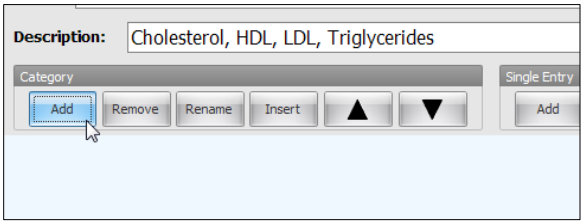
The “Edit Lab Results Template” window is displayed.



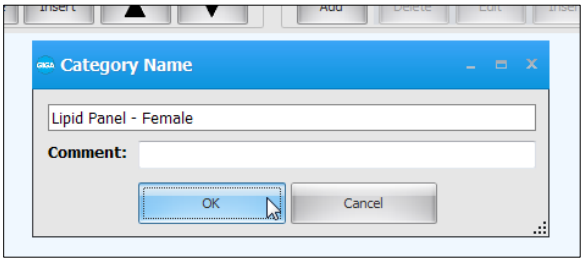
2. Enter a name for the new template followed by a description.



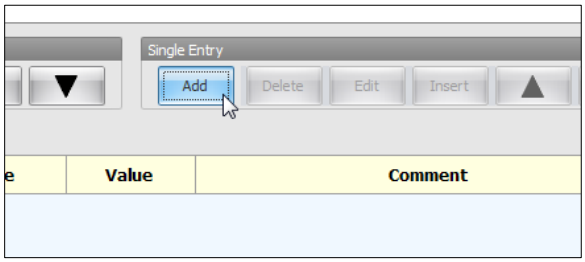
3. Create categories to group a series of tests in a lab report. Click “Add” to create a new category.



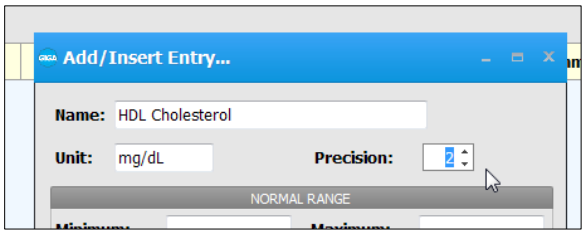
4. Enter the name of the category and click “OK”.



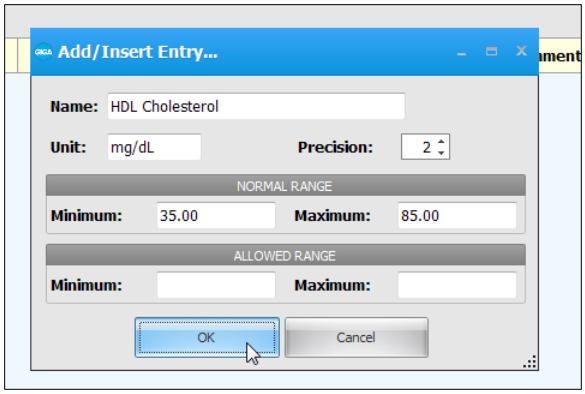
5. Click “add” on the “Single Entry” menu to create a new test under the current category.



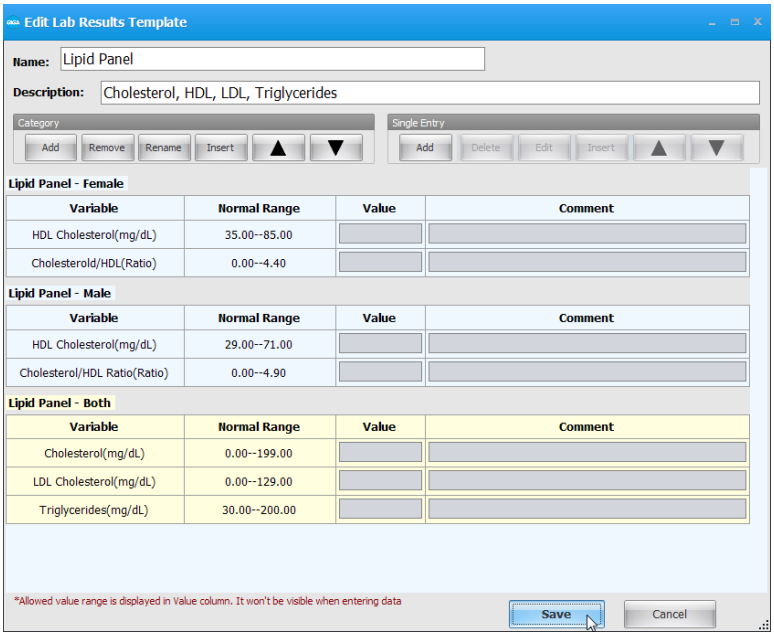
6. Enter the name of the test, the unit, and decimal precision.



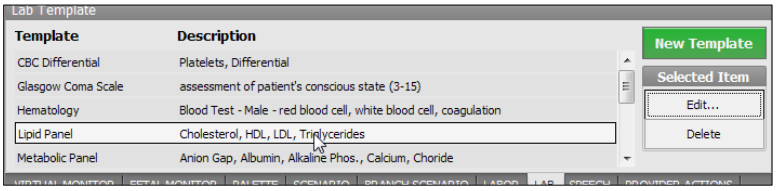
7. Enter a “Normal Range” the provider to reference. The normal range is visible on the lab report. The “Allowed Range” restricts the minimum and maximum value that can be entered a test result. Click “OK” to add the new test.



8. Repeat the process to add more tests and categories. Click “Save” to create the new lab template.

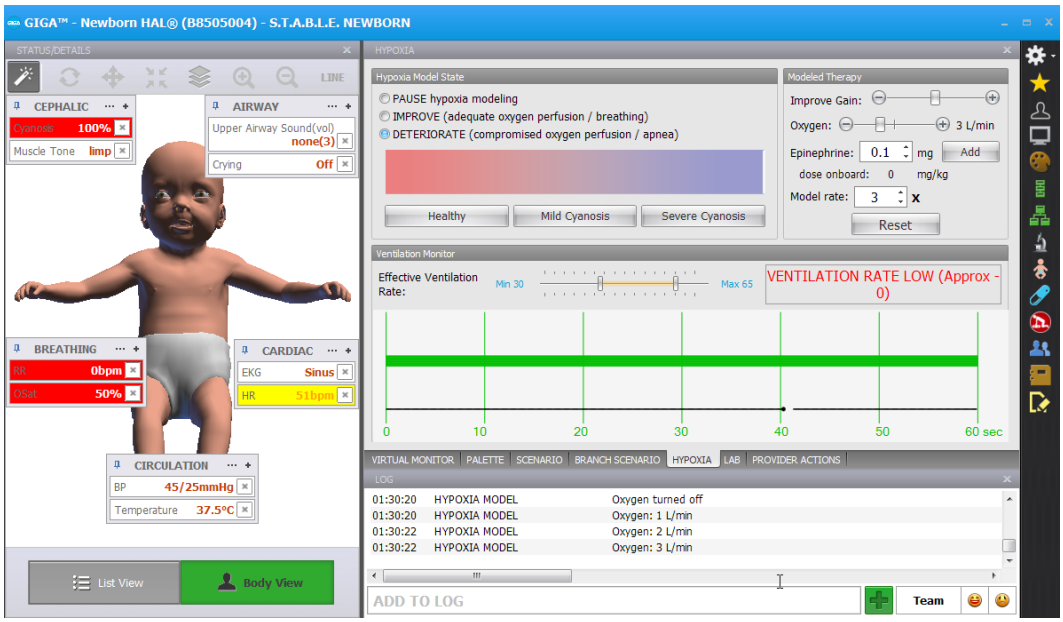


The new template is listed on the “Lab Template” section at the bottom of the Lab tab. Use the buttons on the left panel to edit or delete lab templates.



Modeling (Newborn/Premie)

Use the Hypoxia tab to evaluate the effectiveness of a provider's intervention on an apneic patient. The model adjusts the cardiac, oxygen saturation, and cyanosis dynamically in response to effective ventilations. The model also responds to the administration of epinephrine and oxygen.



HYPOXIA MODEL STATE

The hypoxia model options improve or deteriorate the cardiac and respiratory vital signs gradually.

- Pause - Model will pause at the current state.
- Improve - Trend the vital signs to a healthy state.
- Deteriorate - Trend the vital signs to a severe cyanotic state. Ventilations are detected when the respiratory rate is at 0.

CYANOSIS LEVELS

Select the cyanosis level to move to any of the following states immediately:

- Healthy - Pedi is pink with adequate oxygenation.
- Mild Cyanosis - Pedi is slightly blue, and the vital signs are starting to deteriorate.
- Severe Cyanosis - Pedi is blue, apneic, and vital signs are rapidly worsening.

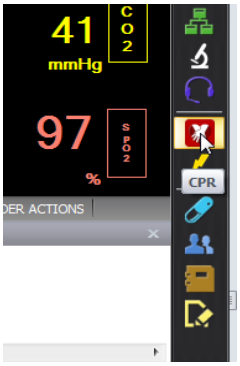
MODELED THERAPY

The modeled therapy menu provides additional intervention options.

- Improve Gain - Adjust the slider to increase or decrease the cyanotic response to ventilations.
- Oxygen - Adjust the slider to administer oxygen to the fetus in liters per minute.
- Epinephrine - Administer epinephrine to the model. Set the epinephrine dose and then click "add". Administering epinephrine increases the heart rate.
- Reset - Click "Reset" to clear the oxygen flow and the epinephrine dose onboard.

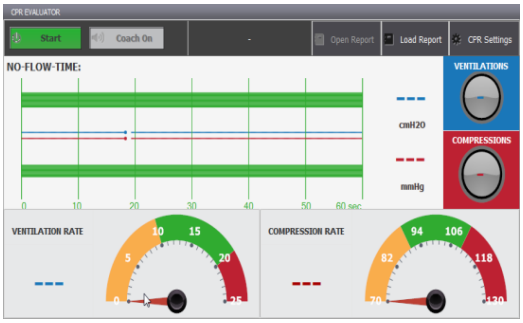
CPR

GIGA features a CPR performance evaluator and trainer. Click the CPR icon on the vertical menu bar to open the CPR window.



It is important to know that the chest compressions will only give feedback to the instructor if the heart rate is not set to a healthy state, and ventilations will only be reported if the respiration rate is set to zero.

This tool allows the instructor to get real-time feedback on the current compressions and ventilations being done by the providers. Also, it will register real or virtual electrical therapy.

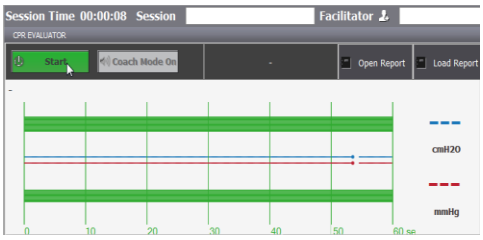


Open this window when your students or providers are ready to start performing compressions and/or ventilations

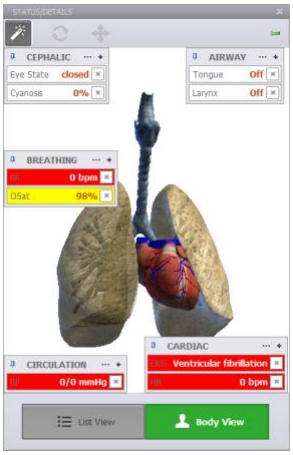
TESTING

The test mode provides compression and ventilation feedback in real time without audible cues.

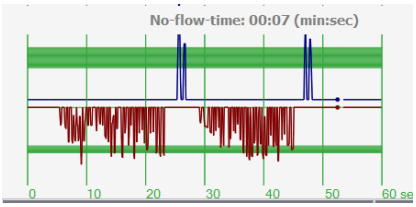
To begin, press the Start button. Perform compressions and ventilations to obtain:



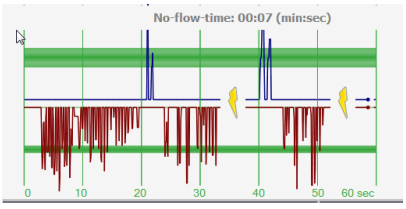
- Lung and heart 3D-view: organs compromised during CPR are responsive to provider actions. Use the 3D-view controls to rotate, zoom, and re-center the model.



- Graphical representation of compressions and ventilations: the ventilations are represented by the blue segment and the compressions by the maroon segment.

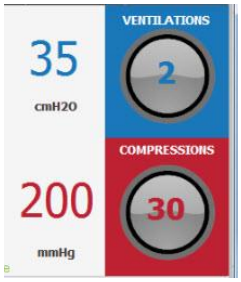


- Electrical therapy representation: Real or virtual defibrillation/pacing is represented by the yellow shock/pace icon.



- Compression and ventilation depth indicators:

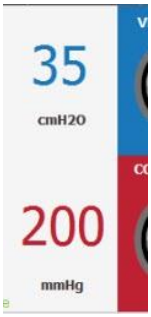
The depth indicators are located to the right of the CPR graph. The indicator's fill color changes between the following states:



1. Grey: no intervention was detected.
2. Yellow: compression was too shallow. Ventilation was too weak.
3. Green: compression/ventilation was performed correctly.
4. Red: compression was too deep. Ventilation was too strong.

- Average of compression depth
- Average of ventilation PIP

The averages of compression depth and ventilation PIP are located to the left of the depth indicators.



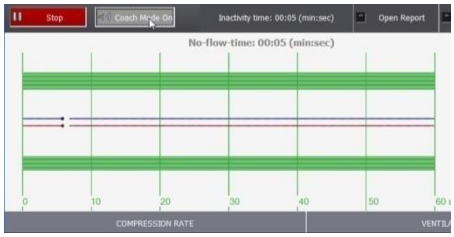
If the simulator has installed the new chest compression sensor, the average of compression depth will be measured in inches/cm instead of mmHg.

- Compression Rate: number of compressions per minute.
- Ventilation Rate: number of ventilations per minute

The compression and ventilation rate controls are located below the CPR graph.

COACH

The coach mode is enabled when the Coach button is pressed.



The coach mode generates visual and audible cues of the compression to ventilation ratio programmed in the Options menu. A high-pitched beep, signals the care provider to perform compressions. A low pitched-beep, signals the provider to perform ventilations. If the provider performs CPR at a correct rate, the beep signals volume will decrease. If the rate is out of range, the beep signals volume increase again.

In addition to providing training on the CPR rate, the coach mode also enables audible commands when the compression meets the following criteria:

If the compressions per minute are below the programmed settings, the audible command **FASTER** is played.

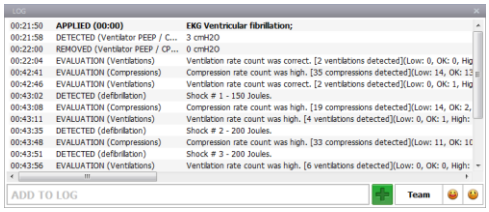
If the compressions per minute are above the programmed settings, the audible command **SLOWER** is played.

If the compressions depth is below the programmed settings, the audible command **HARDER** is played.

If the compressions depth is above the programmed settings, the audible command **TOO DEEP** is played

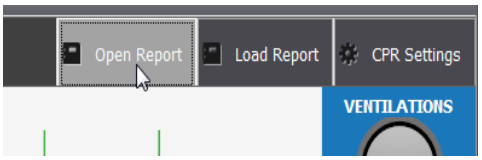
If the compressions recoil is not complete, the audible command **RELEASE** is played

Compression and ventilation data is displayed in the log window as CPR is performed by the provider.



REPORT

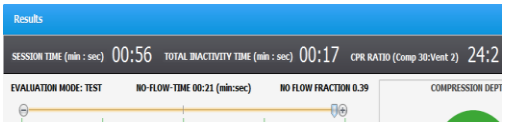
To access the report window after completing a CPR session, press the Open Report button. Note that this button is disabled until the Stop button has been pressed.



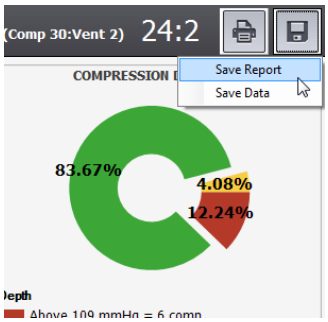
This window displays a summary of the most important parameters during CPR training

The top bar of the report window displays:

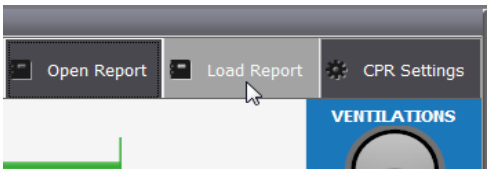
- Session Time: Total time of the CPR activity
- Total Inactivity Time: Total time without CPR activity.
- CPR Ratio: Average compression to ventilation ratio
- Evaluation Mode: It displays the evaluation mode selected
- No Flow-Time: Arrest time without chest compressions
- No Flow Fraction: Fraction of arrest time without chest compressions



Print/save the report data by pressing the print/save buttons located on the right top of the window.



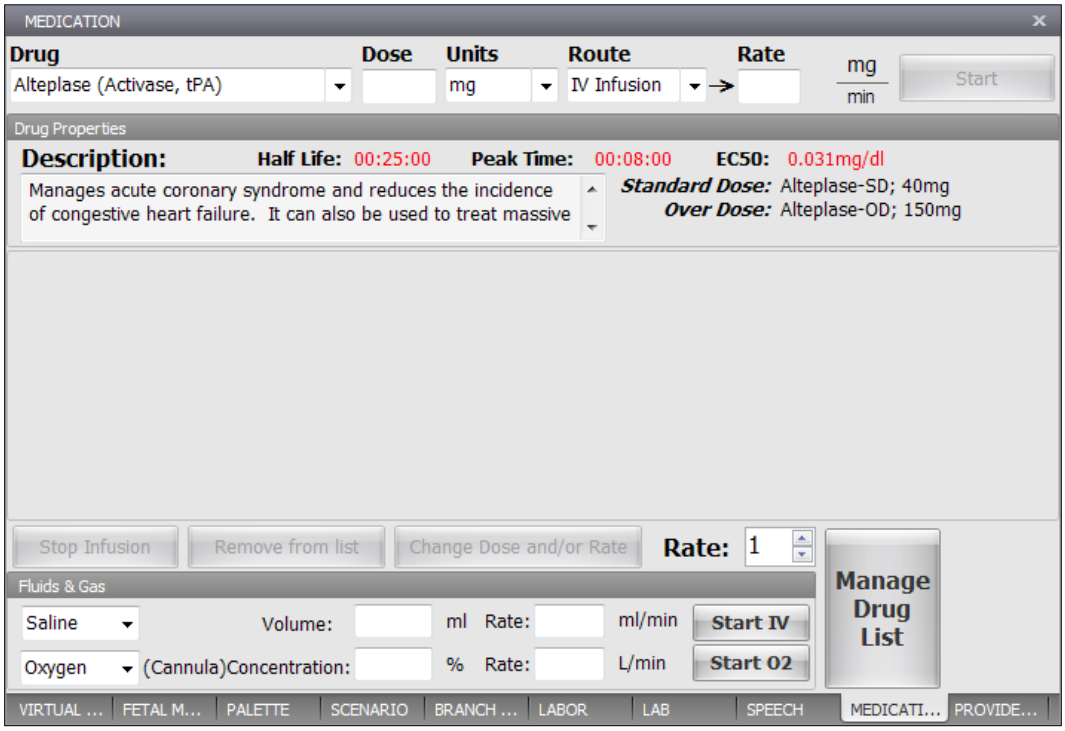
Facilitator can load a saved report using the Load Report button.



Medication (Auto Mode)

The Medication tab is exclusive to the automatic operating mode. Use the medication controls to simulate the physiological effects and reactions of medications administered to the patient model. To simulate the effects of a medication, the GIGA software processes the drug's properties, dosage, and interactions, and then adjusts the patient vital signs accordingly.

The Meds Profile includes a library of preprogrammed drugs. The built in drug editor allows facilitators to stay current with new medications or make changes to the properties of the existing drugs. All of the preprogrammed drugs included in the Med Profile library are found in the 2008 Handbook of Emergency Cardiovascular Care published by the American Heart Association.

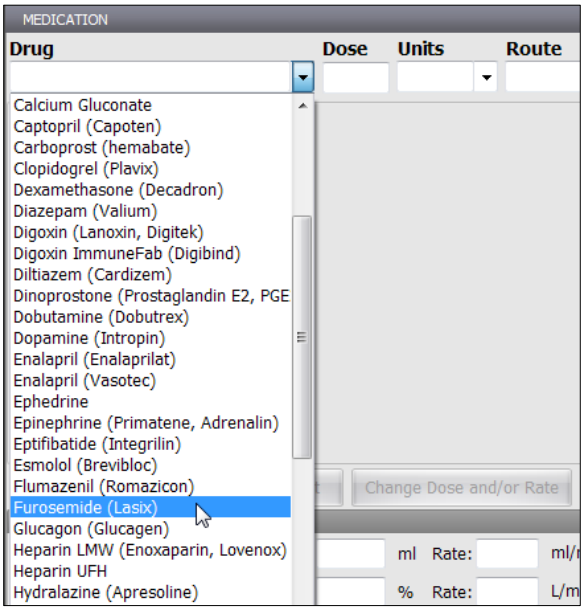


ADMINISTERING MEDICATIONS

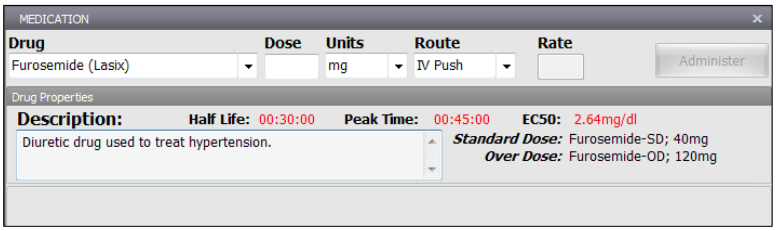
Follow this guide to administer a medication directly from the medication tab.

To administer a medication from the Medication tab:

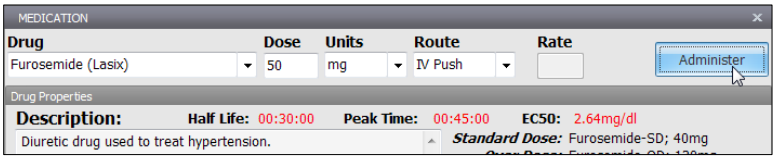
9. Select the medication from the Drug drop down menu.



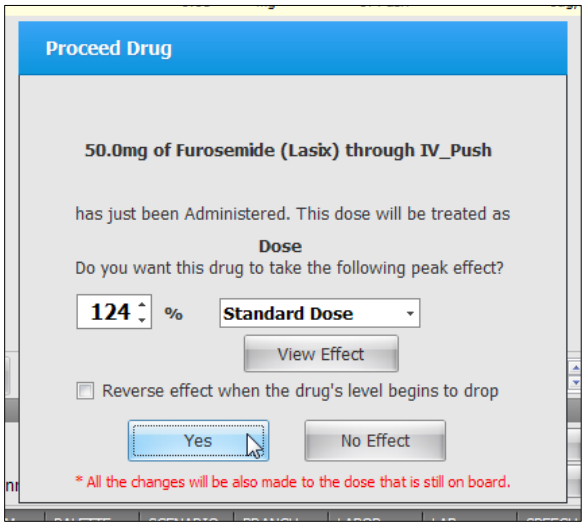
A brief description is displayed at the top of the window. The half-life, peak time and drug concentration values are listed in addition to the standard and over dose dosage.



1. Enter the dose, units, route and rate (if applicable), and click “Administer”.

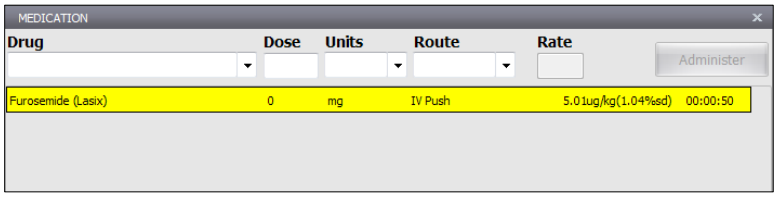


2. The “Proceed Drug” window prompts to confirm the dosage effects before applying them. Adjust the peak effect percentage and/or the dosage effect, and then click “Yes” to apply the effects

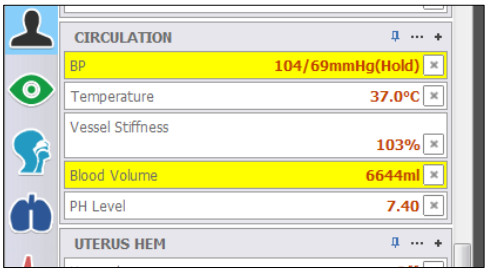


To turn off the Proceed Drug prompt, click Setup>Auto Responses and change the Drug Model Effect settings to “Auto”.

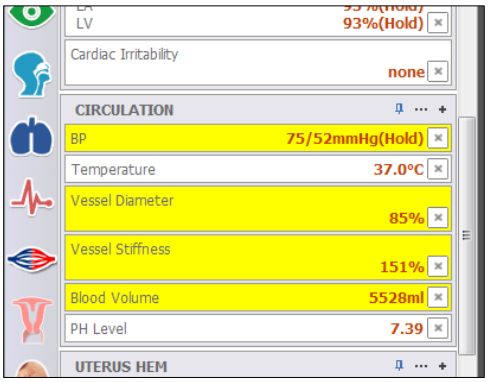
The administered drug panel displays information on dosage rate, does administered, and total time of administration.



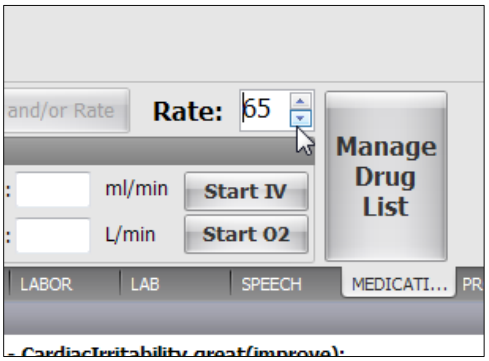
The Auto mode adjusts the patient's vital signs to simulate the effects of the drug automatically.



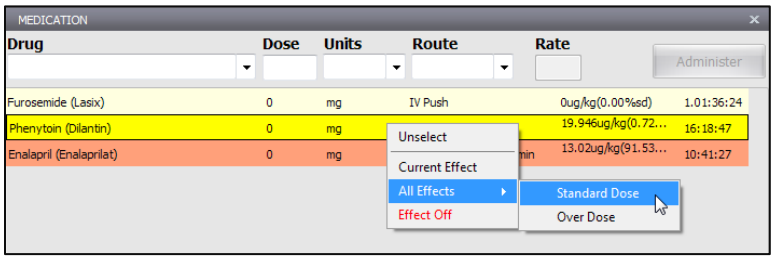
The blood pressure continues to decrease in response to the medication's properties.



3. Increase the "Rate" factor to speed up the effect of a medication on the patient model.



4. Right click on the drug entry to access additional options.

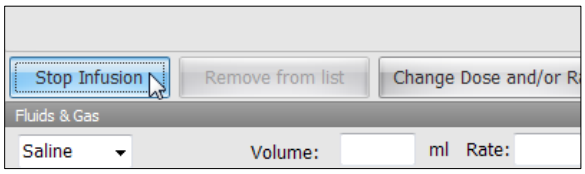


Select from the following options.

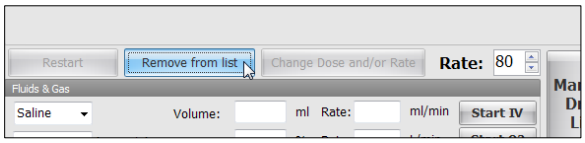
- **Unselect** - Unselect a highlighted drug
- **Current Effects** - View the effect on the patient's vital signs
- **All effects -** View all the available programmed drug effects for this medication
- **Drug effect toggle** -Turn the drug effects on the patient model on or off

REMOVING A MEDICATION

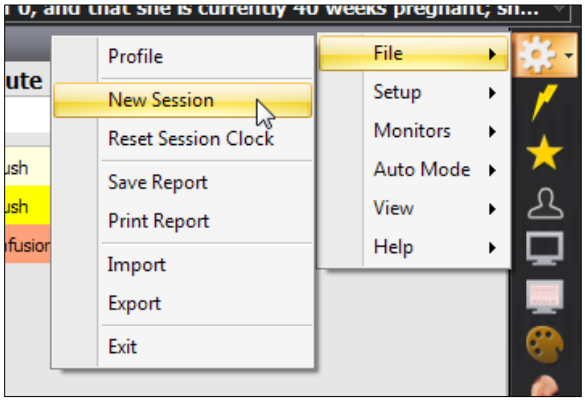
Drugs cannot be removed from the list during the administration process with the exception of IV infusions. To stop an IV infusion before it is finished, highlight the medication from the list, and click stop.



After the dose administration is complete, select the drug and click “Remove from list”.

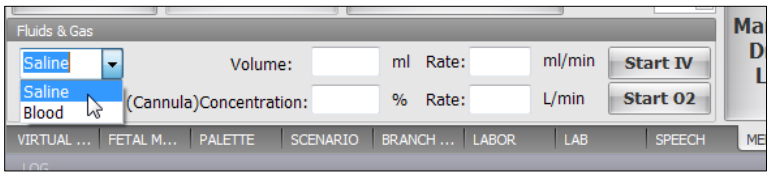


To remove all the medications from the list and reset the effects on the patient model, click “File > New Session”.

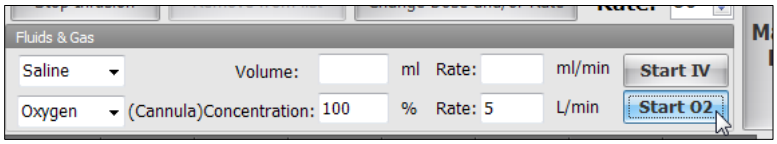


FLUID & GAS

The automatic mode can process the administration of gas and/or fluids to the patient model.

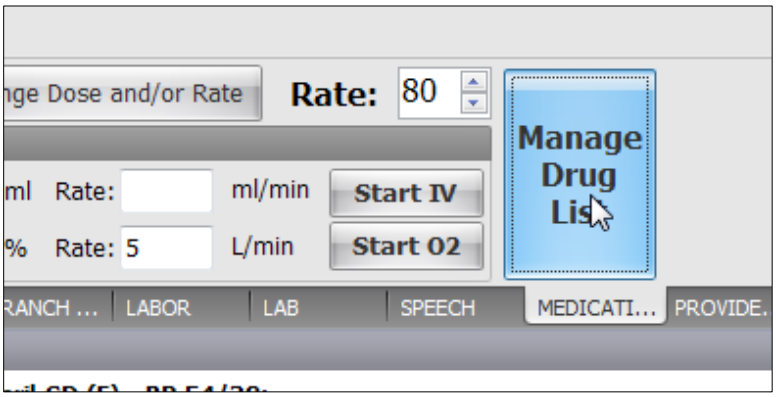


Select from saline, blood, or oxygen and the volume/concentration and rate. Click on “Start” to administer.

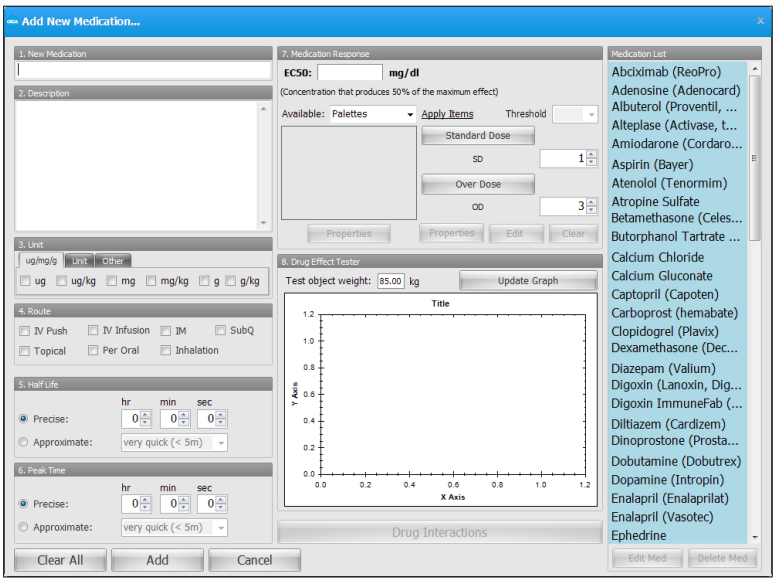


DRUG LIST MANAGER

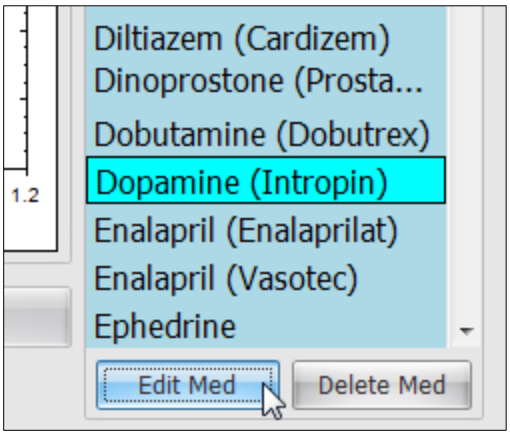
Click the “Manage Drug List” button to open the “Add New Medication…” manager.



Use the “Add New Medication” manager to add new medications, edit medication properties, update existing items, and program medication interactions.



Select a medication from the Medication List and click “edit” to view the medication’s properties.



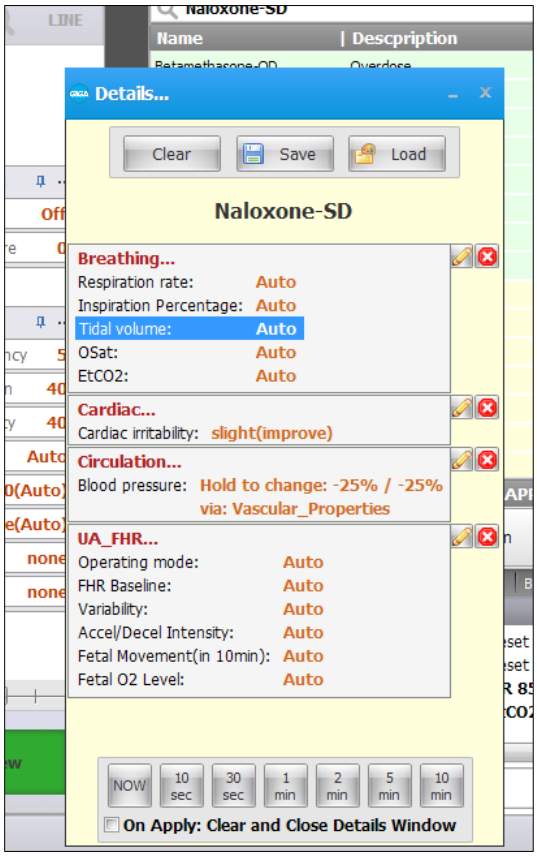
CREATING NEW MEDICATIONS

Each medication is programmed with two palette items. One palette item is programmed with the vital signs adjustments to simulate the effects of a standard dose (SD), and the other palette item is programmed with the effects of an over dose (OD). Additional information such as half-life, peak time, and route is also programmed into the medication properties.

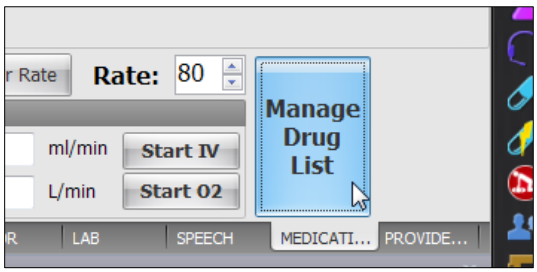
When the medication is administered to the patient, the software applies the palette item associated with the dose threshold. The Auto Mode adjusts the vital signs changed by the palette item gradually to simulate the medication's effect on the patient.

To create a new medication:

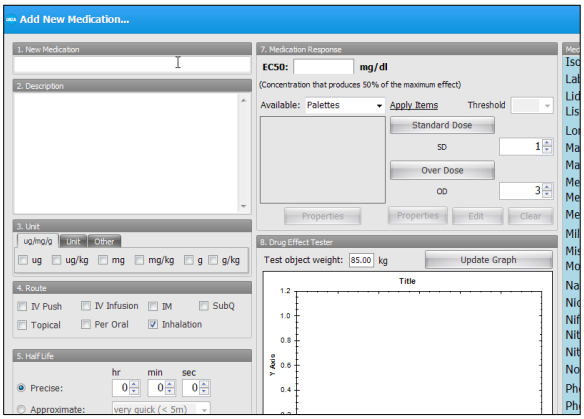
1. Create a palette item using details page for the effects of a standard dose (SD). Then, repeat the process to create a palette item for the effects of an over dose (OD). For general information on creating a palette items, please go to page 39.



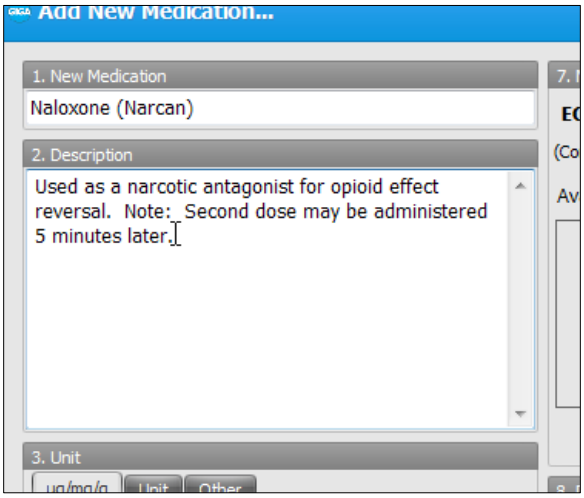
2. After dose effect palettes are created using the Details controls, go to the drug tab and click the "Manage Drug List" button.



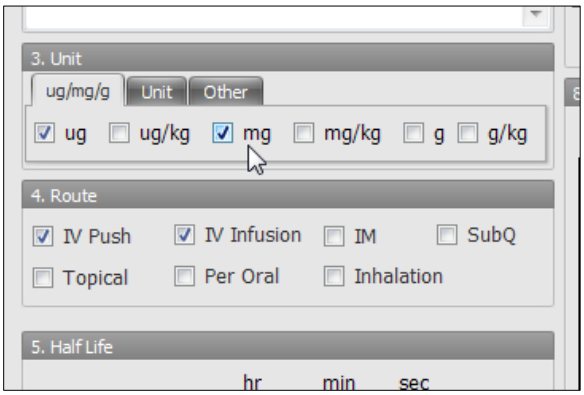
The Add New Medication window is displayed.



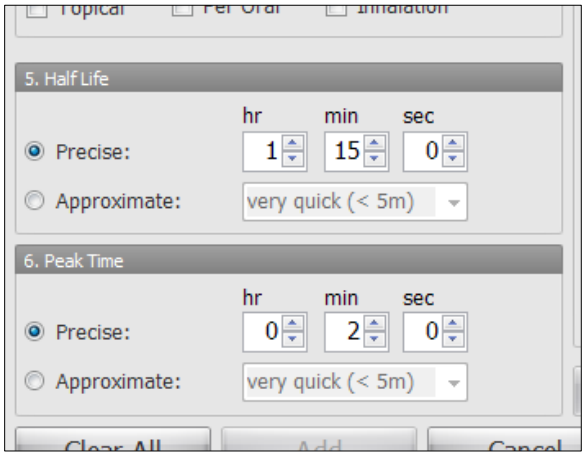
3. Type the name of the new medication (e.g. Generic Name (Brand Name)) and enter the medication's description and the dosage information



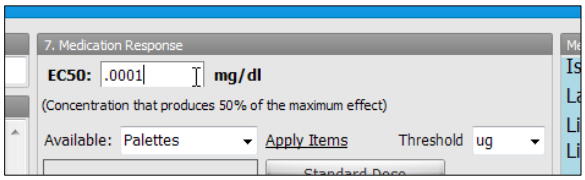
4. Select the units and the administration route.



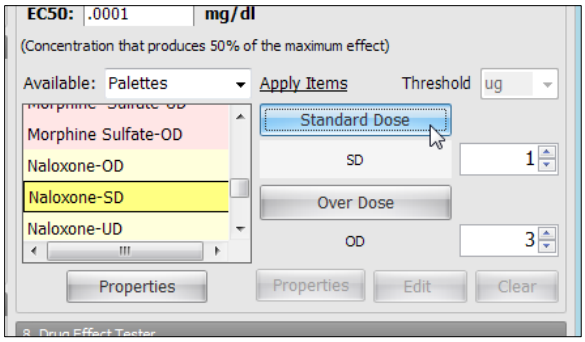
5. Enter the drug's Half Life and Peak time.



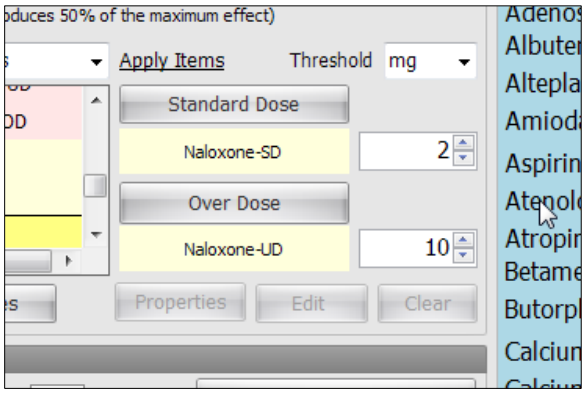
6. Enter half-maximal effective concentration.



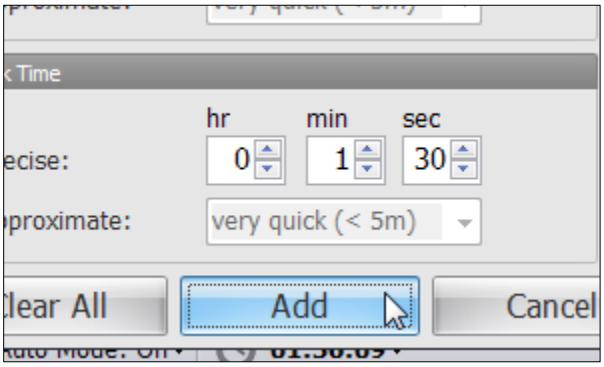
7. Select the standard dose (SD) effect palette created earlier and then click the applicable dosage button to assign it to the threshold. Repeat this step to assign the over dose (OD) effect palette to the Over Dose threshold.



8. Select the threshold unit and set the dosage amount that will trigger the programmed palette effect.

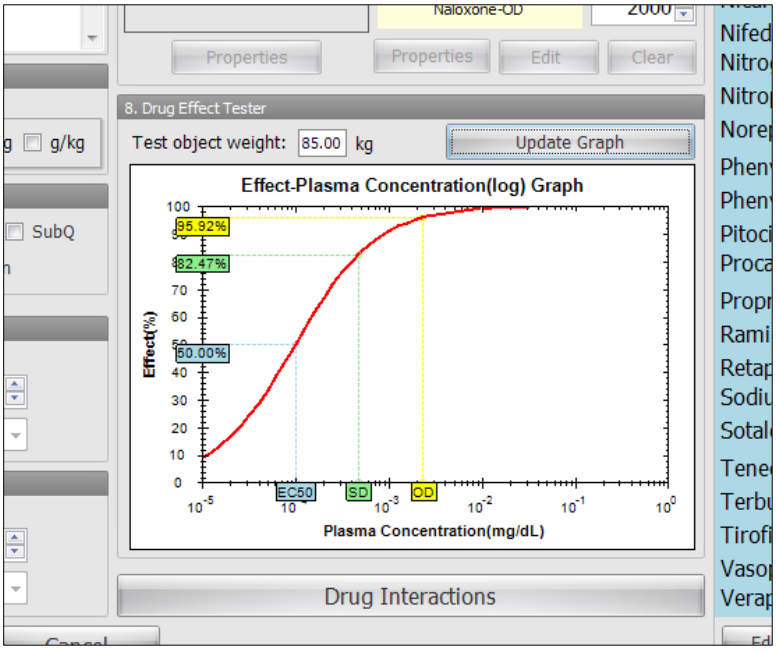


9. Click “Add” to save the new medication to the Medication List library.



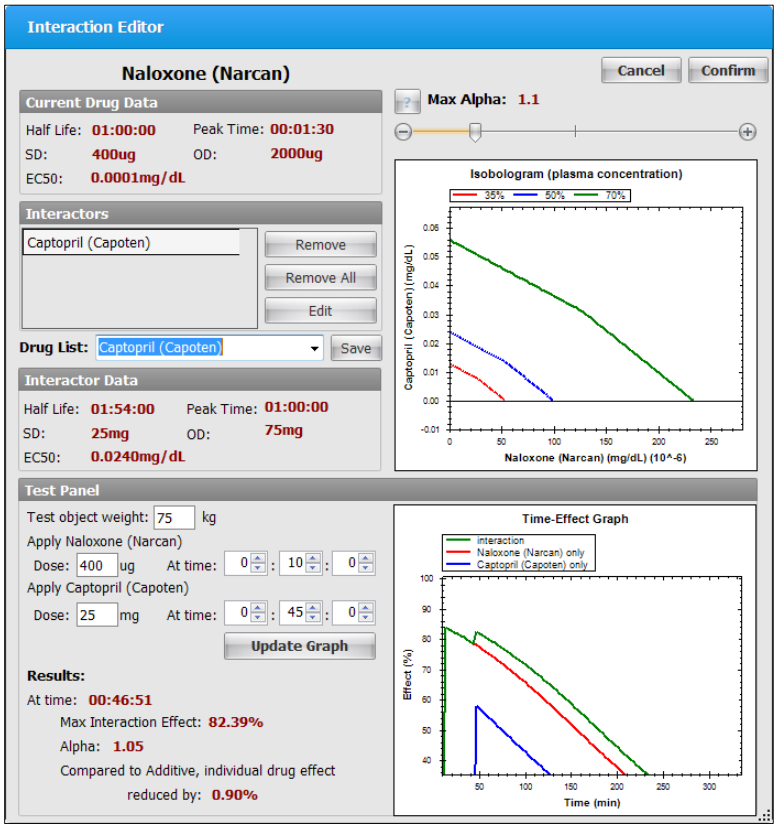
DRUG EFFECT TESTER

After configuring the drug properties using the “Add New Medication...” menu, click the “Update Graph” button to generate the effect-plasma concentration results. Continue to the next section to program interactors for this drug.

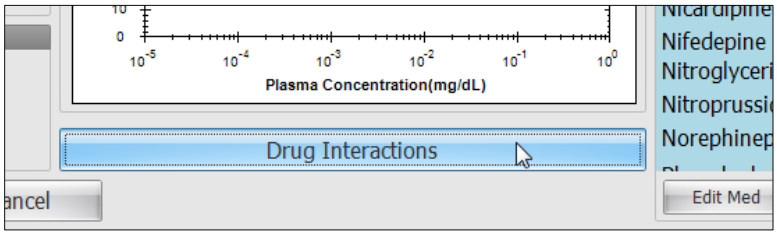


DRUG INTERACTION EDITOR

Use the “Interaction Editor” window to program drug interactions. When two or more medications preprogrammed to interact are administered, the physiologic model will adjust vital signs to simulate interaction effect.



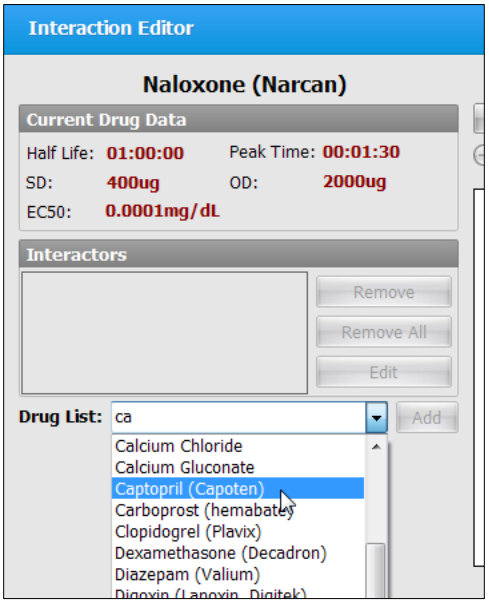
Click “Drug Interactions” on the “Add New Medication…” window to open the Drug Interaction editor.



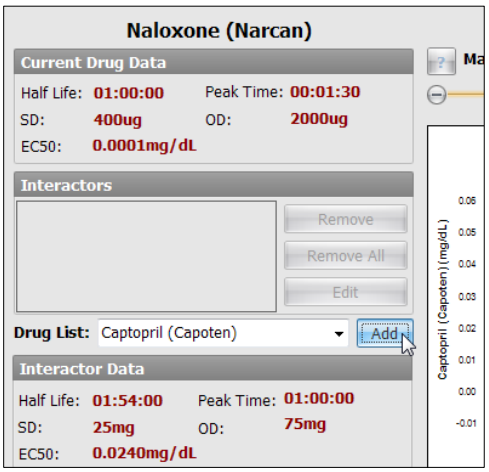
PROGRAMMING INTERACTORS

To program one or more medications to interact with the current drug:

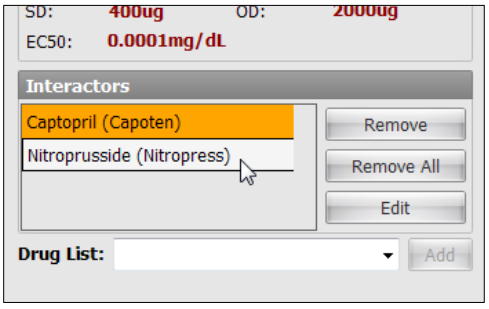
1. Select the interactor from the drug list click “Add”:



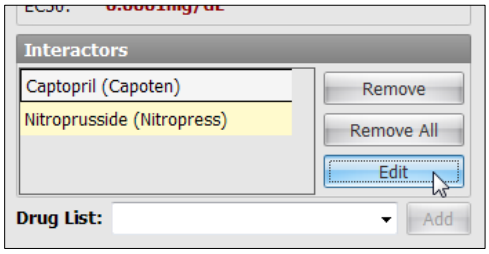
Information about the interactor drug is displayed in the Interactor Data window.



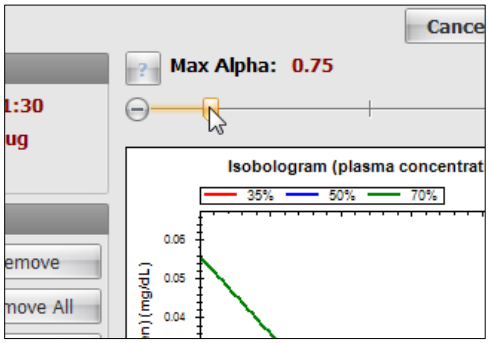
2. The drug is included into the interactors list. Repeat the process to add more drugs to the interactors list if necessary.



3. Select the interactor and click “Edit”

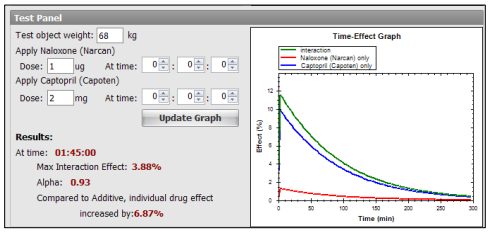


4. Adjust the **Max Alpha** to modify the type of interactivity effect. Monitor the graph for a visual model of the plasma concentration.
    - **Alpha** = 1: Additive
    - **Alpha** < 1: Synergistic/Induction
    - **Alpha** > 1: Antagonistic/Inhibition



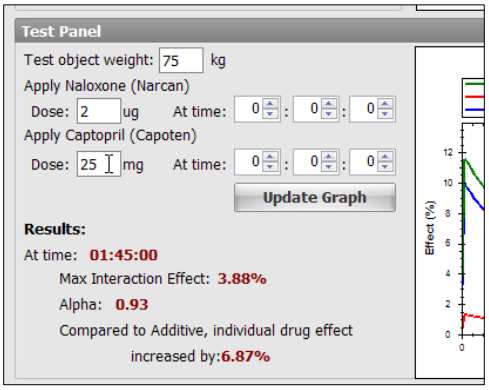
TEST PANEL

Use the test panel to simulate the interaction between the drugs based on dosage and time of administration.

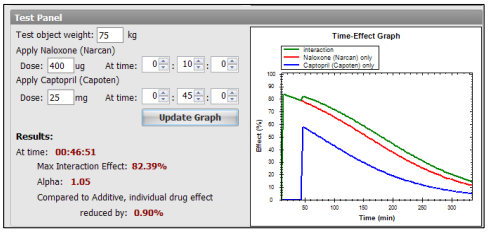


To simulate the medications interactivity using the test panel:

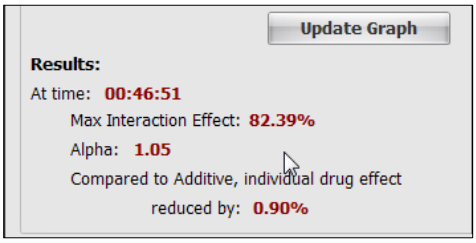
1. Enter the patient's weight and the dose for each drug.



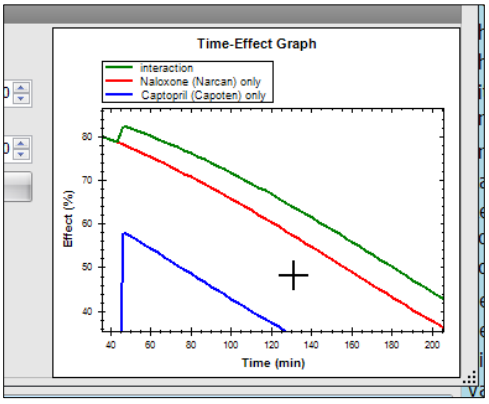
2. Enter the time of administration for each drug and click "Update Graph".



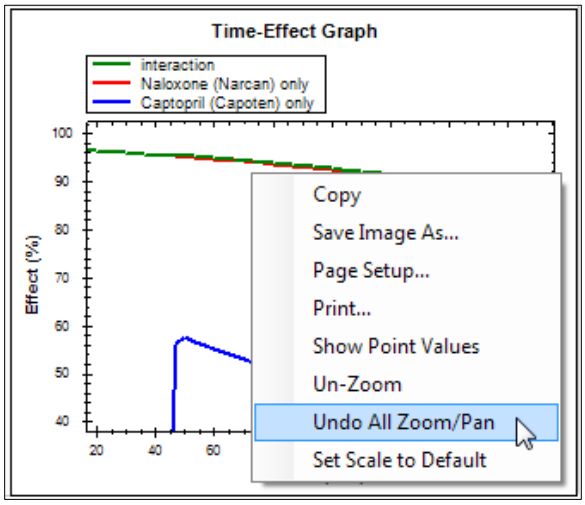
The results indicate that the maximum interaction effect (82.39 %) occurs at 00:46:51. The alpha at that point is 1.01 and the drug effect for each drug is reduced by 0.90%. Fine-tune the Max Alpha control and retest if the drug interaction effect is not realistic.



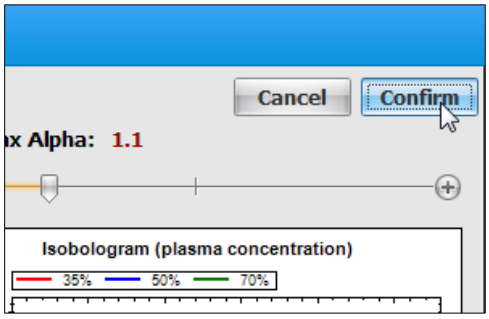
A time-effect graph is generated from the test results. Tap and hold to draw a zoom area.



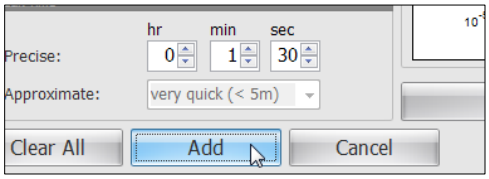
3. Right click anywhere on the graph access the zoon and print options.



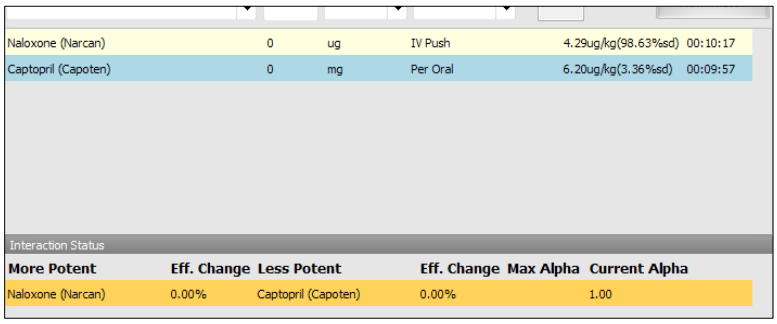
4. Click “Confirm” to save the settings.



5. Review all the properties of the new medication in the “Add New Medication…” window, and click “Add” to save the new changes.



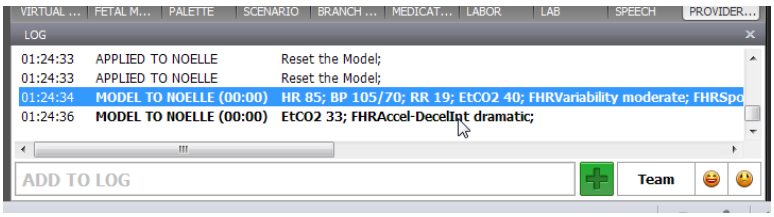
In the example below, two drugs preprogrammed to interact have been administered. The interaction information is listed in the Interaction Status panel.



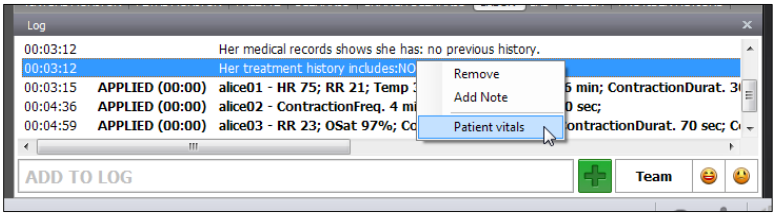
Event Log

The event log records a time stamped entry of events that occur during the simulation session. It addition, every individual entry records a snapshot of the vital signs parameters at the time the event occurred. The text log records the following events:

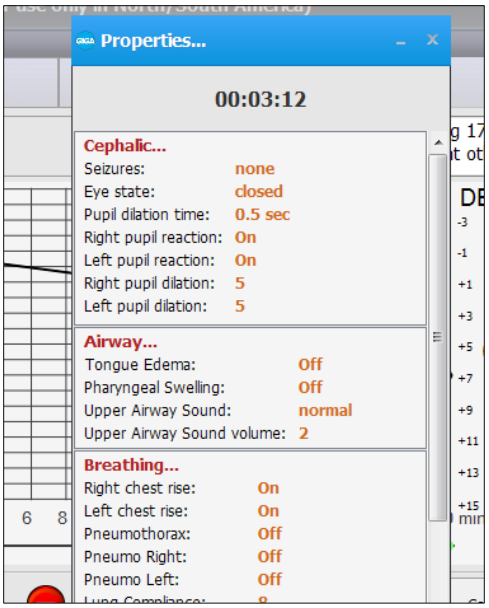
- Vital sign changes applied manually or made by scenario
- Events detected by onboard sensors (e.g. intubation sensor, defibrillation sites)
- Preprogrammed speech phrases
- Satisfactory or unsatisfactory evaluation
- Facilitator notes



Select an entry from the list and right click to view additional options.

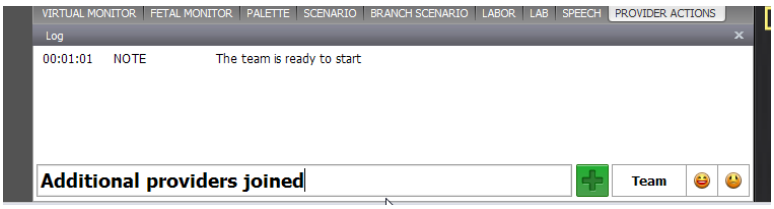


Select “patient vital signs” options to view a snapshot of the vital signs values when the event occurred.



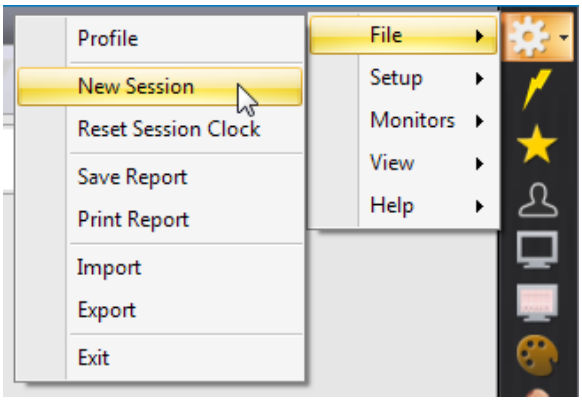
ADDING NOTES

Enter notes into the “add to log” field to record notes manually. The information is categorized in the log as “NOTE”.



CREATING A NEW SESSION LOG

The log event “time stamps” reference the GIGA session clock. At the start of a new simulation exercise, click File>New Session to reset the session clock 00:00:00, reset any vital parameters settings, and clear all the event entries.



SAVING THE LOG INFORMATION

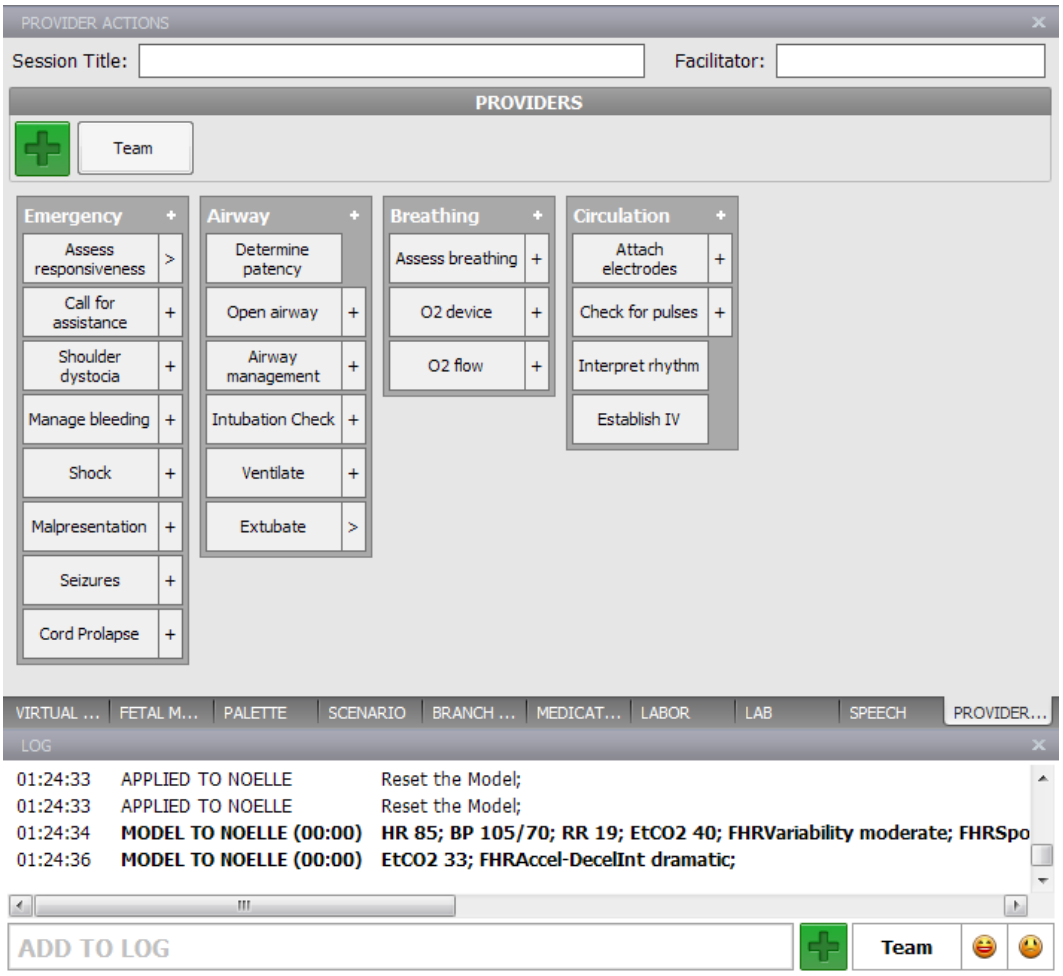
The log information is recorded in a rich text format. Export the log information to save a detailed history of the events that occurred during the session.

To save the session log report as a text file:

1. Click FILE>Save report
2. Enter a name for the report
3. Select the desired name and path, and click “Save”.

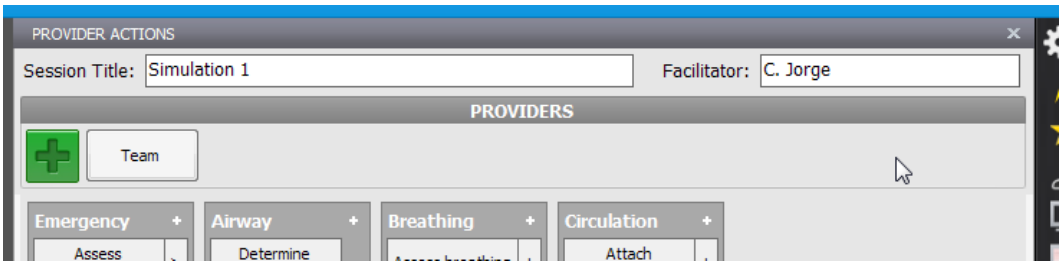
Provider Actions

Use the Provider Actions tab to track actions performed by the provider manually. Each option on the Provider menu generates a time stamped entry in the text log below.



SESSION INFORMATION

Enter the session tile information and the name of the facilitator at the start of the session. The information is included in the final log report.

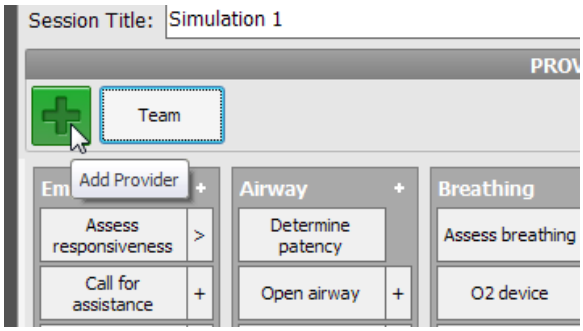


TEAM LOGGING

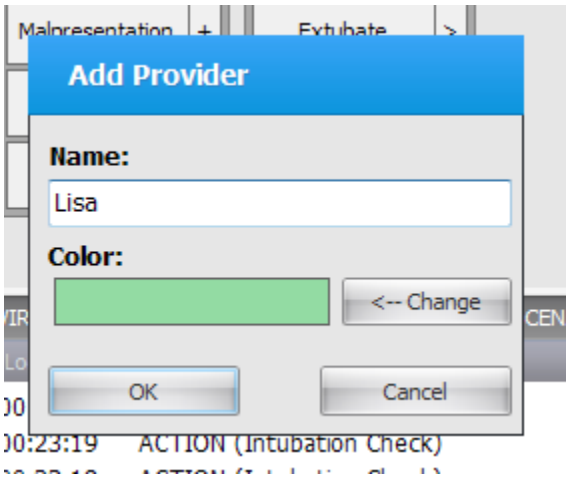
The team logging feature is used to track the individual actions of up to six providers manually. The feature records the name of the provider with the action as an event entry in the log.

To add a new provider to the Provider Actions" window:

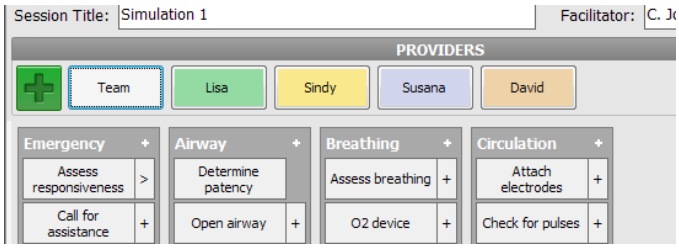
1. Click Add" button to add a new provider.



2. Enter the provider's name and select a color tag. Click OK to save the provider.

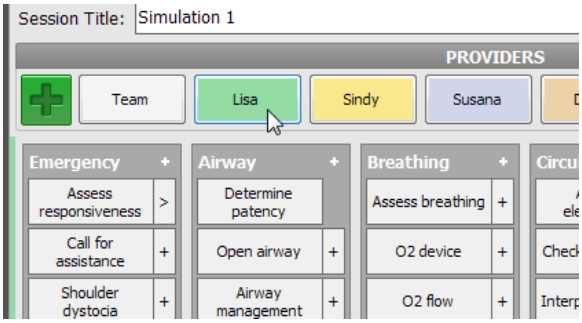


3. The provider is now added to the log tab. Repeat the steps to add up to six different providers.

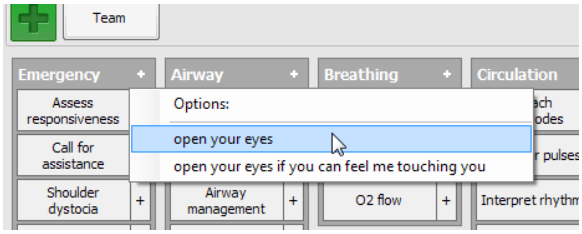


TRACKING PROVIDER ACTIONS

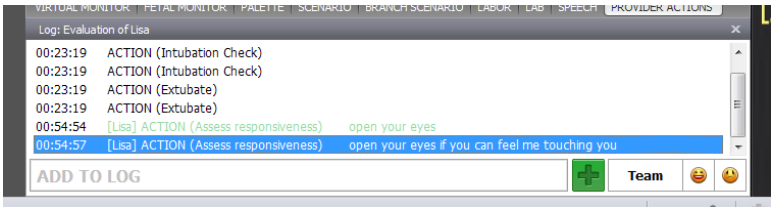
Provider actions can be tracked as a team or individually. Click the provider's name to set the provider as active and track the actions individually.



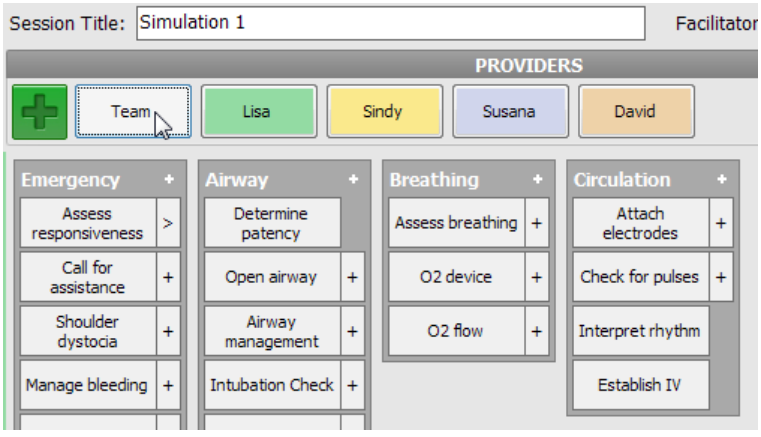
Click the appropriate option to track the action. For example, if the provider assesses the patient's responsiveness by requesting them to open their eyes, click the "Assess responsiveness" button and select "Open your eyes".



The following log entry is generated with the name of the active provider who performed the action:



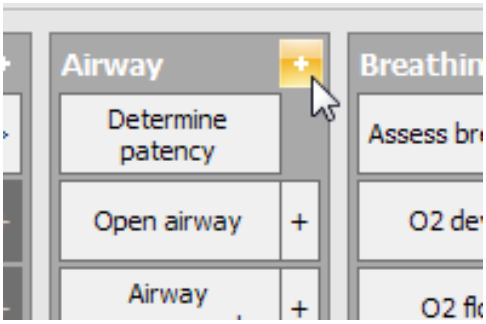
Click the "Team" button to deactivate the active provider and return to general logging. Right click the provider button to delete or rename a provider.



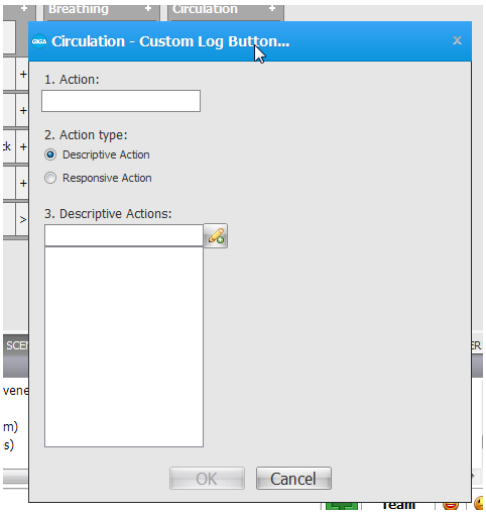
CREATING NEW PROVIDER ACTION BUTTONS

Create new clickable provider action buttons to expand the library of actions. To add a new action to an existing category:

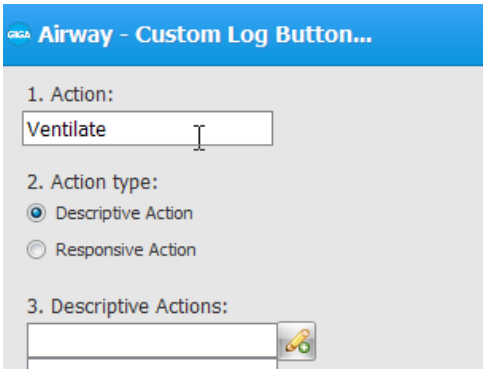
1. Click the + button on the category



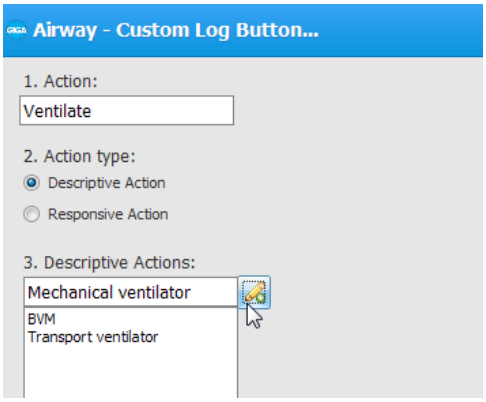
2. The category menu is displayed



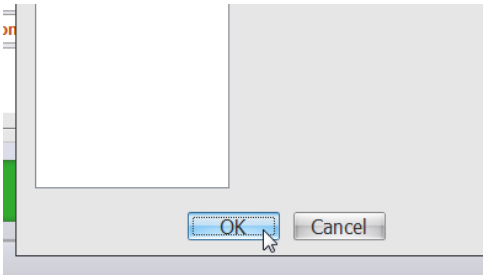
3. Enter the name of the action and select the type of action



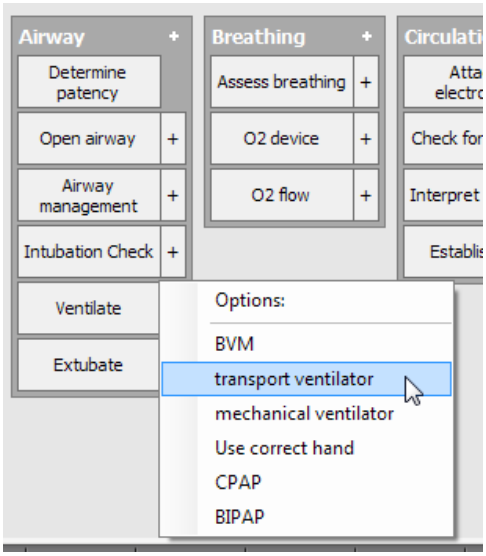
4. Enter a description for the possible action and click + to add. Repeat the process to add several actions.



5. Click OK to save

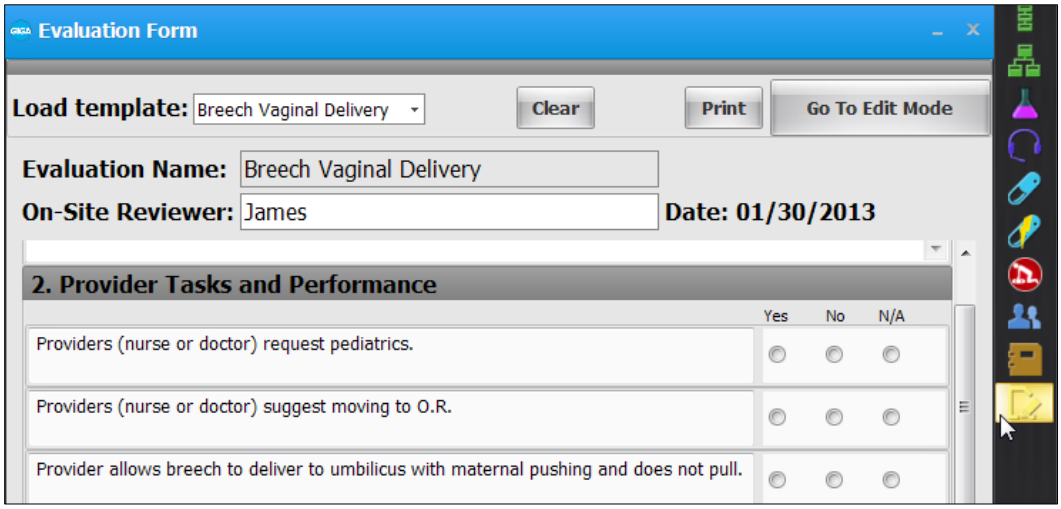


The new action is listed in the airway category.



Evaluation Form

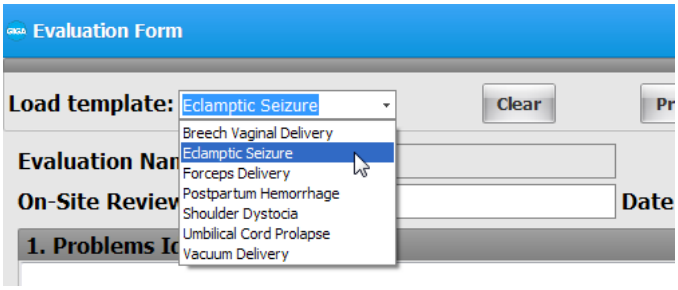
The evaluation tool assists facilitators in reporting and assessing provider interaction using a questionnaire form. A completed evaluation form can then be stored as a digital document or printed for distribution.



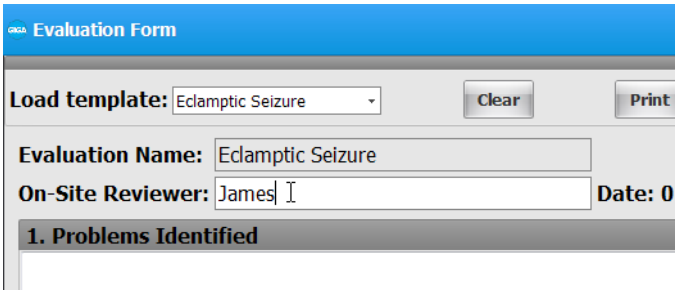
USING BUILT-IN EVALUATION FORM TEMPLATES

Several preprogrammed evaluation templates included in the GIGA software. Each template includes a set of multiple-choice questions, fill in the blank, and true or false questions for a variety of scenarios.

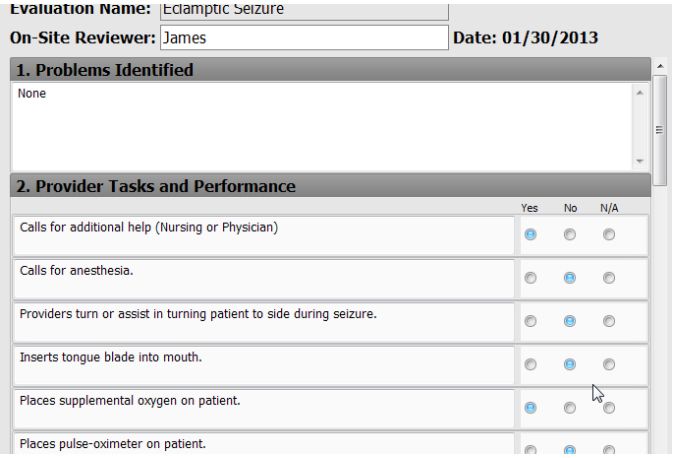
Select an evaluation template from the “Load template” drop down to begin.



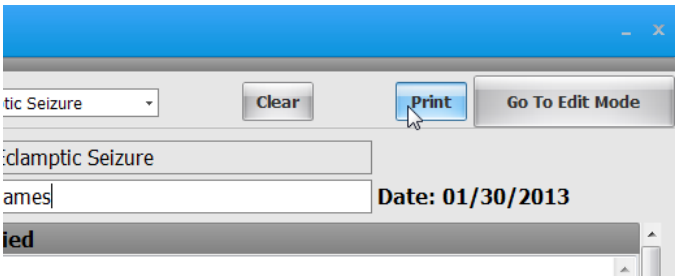
Enter the name of the facilitator administering the evaluation in On-Site Reviewer field.



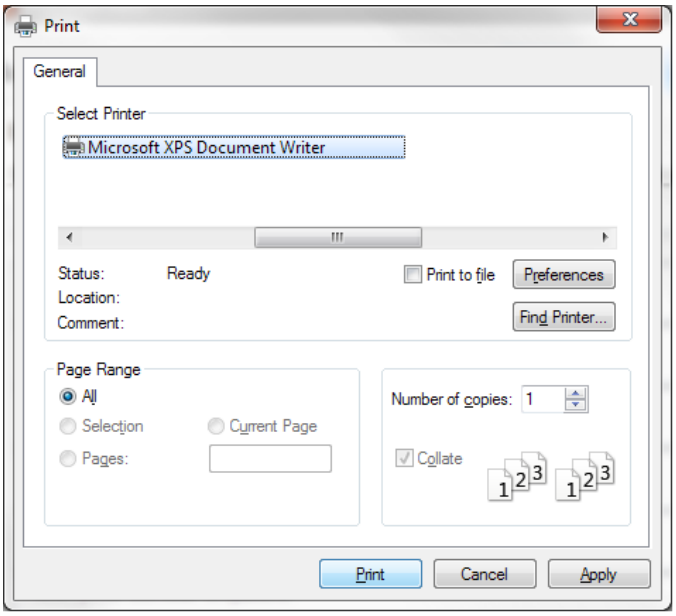
Complete the form by answering each question.



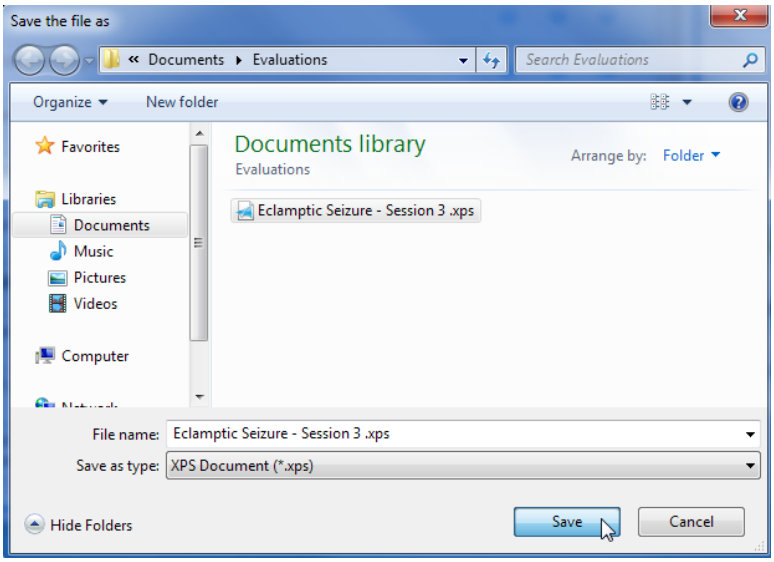
Click “Print” at the top right corner of the screen once the evaluation is completed.



Select the Microsoft XPS Document writer to save the finished evaluation as digital document. Click “Print” to save the digital copy in the system.

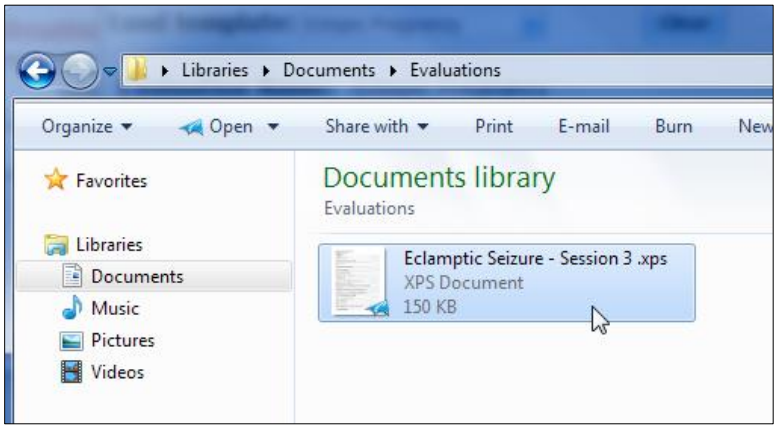


Enter a name for the evaluation and click “Save”.

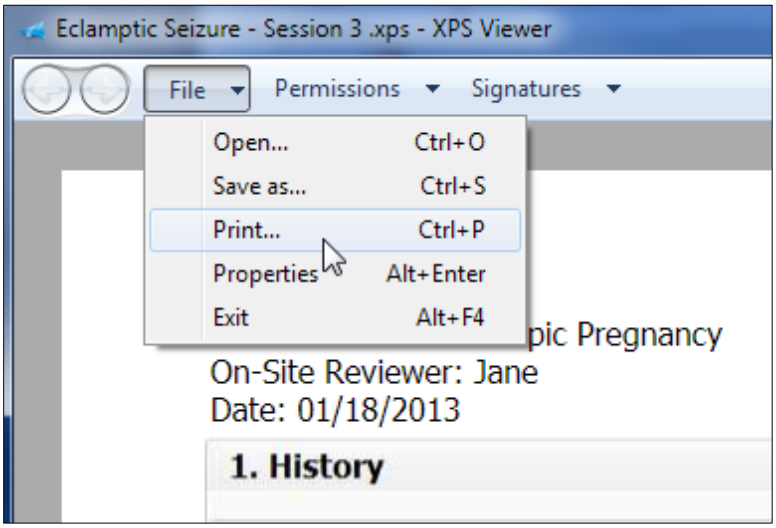


PRINTING AN EVALUATION

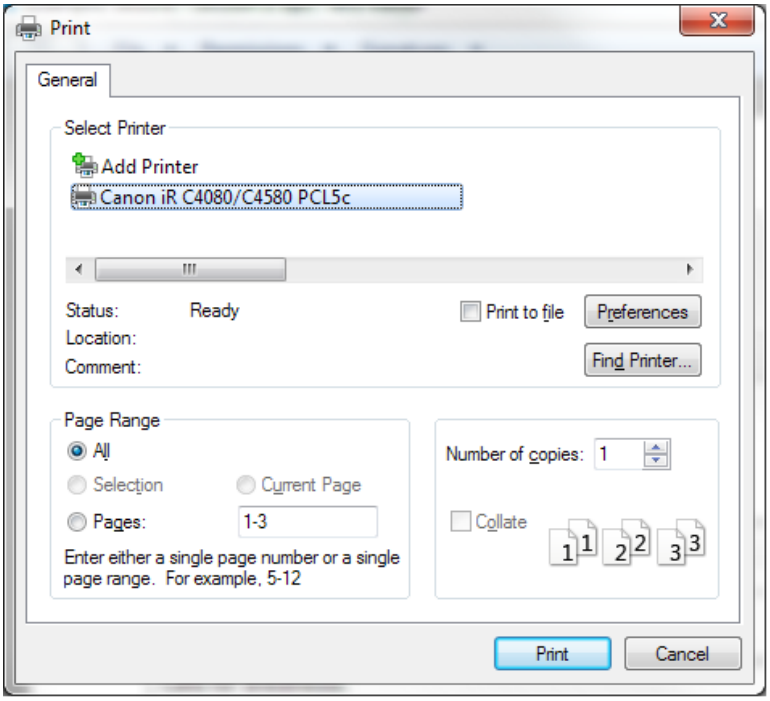
If the PC is connected to a printer, select and open the evaluation document saved in the previous step.



Navigate to the XPS Viewer file menu and select “Print”.



Select the printer device from the list box and click print.

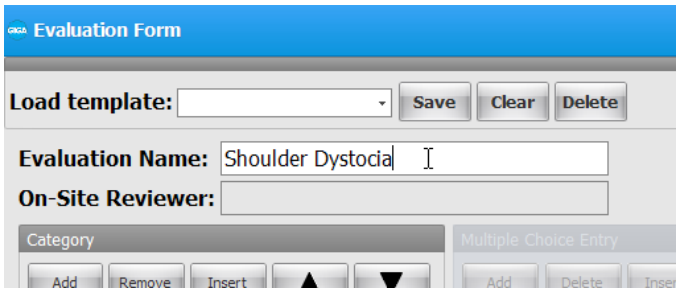


It is recommended that documents be first saved as XPS files before being printed into hard copies.

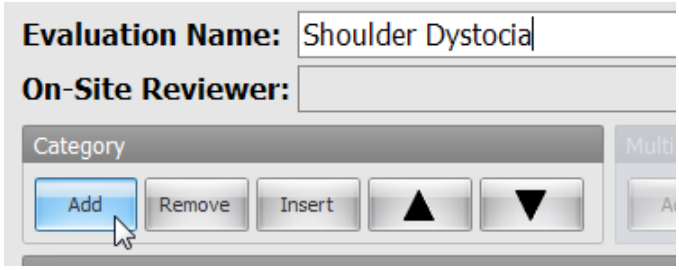
CREATING NEW EVALUATION TEMPLATES

Create new evaluation templates for new scenarios using the edit mode. To enter the edit mode, toggle the “Go To button” located on the top right of the evaluation form window.

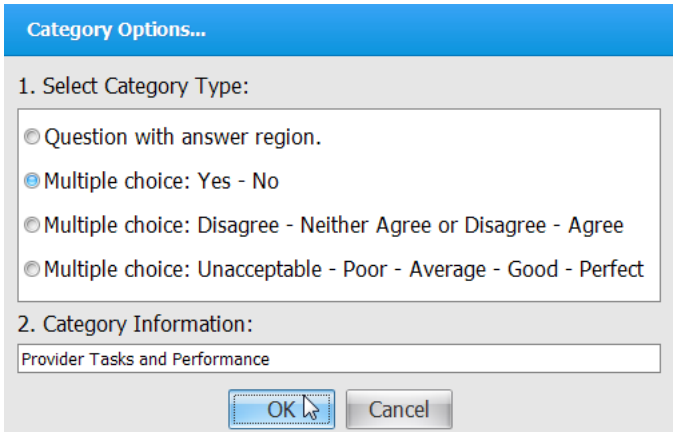
Enter a name for the new evaluation template in the “Evaluation Name” field.



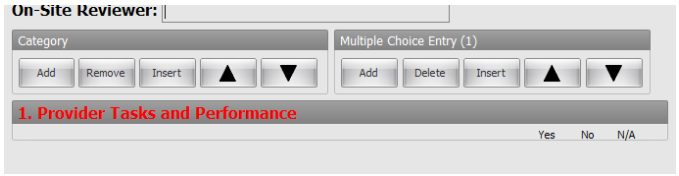
Click “Add” on the Category menu.



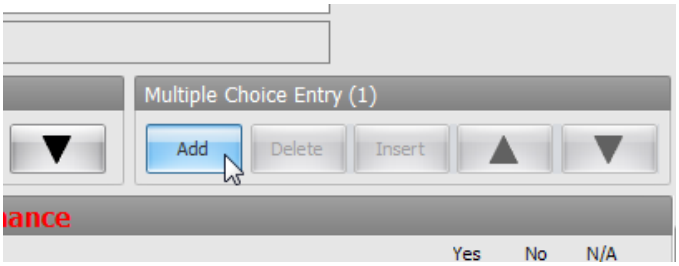
Select the category type and enter the category title. Click OK to save.



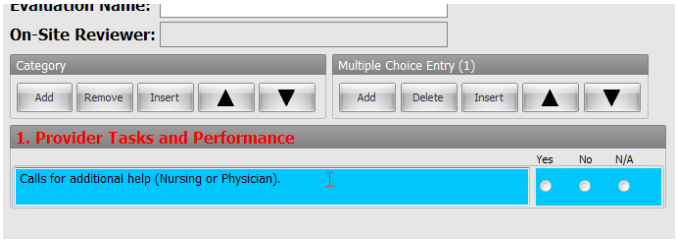
The new category is now created.



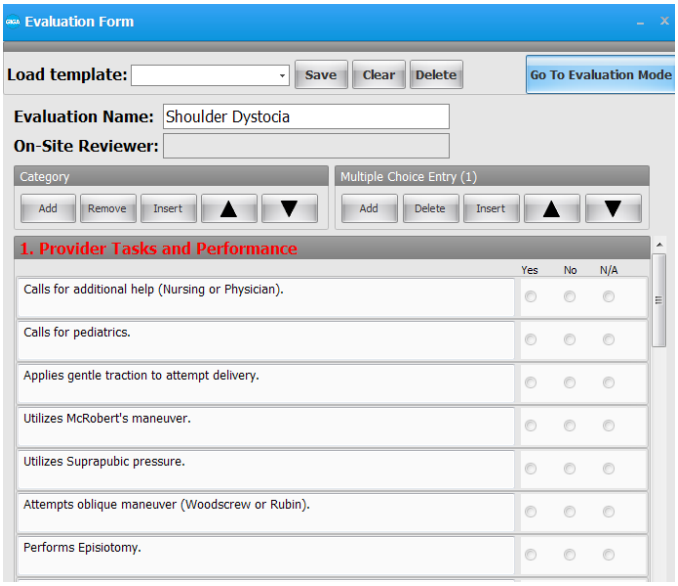
Highlight the new category and then click “Add” on the “Multiple Choice Entry” menu.



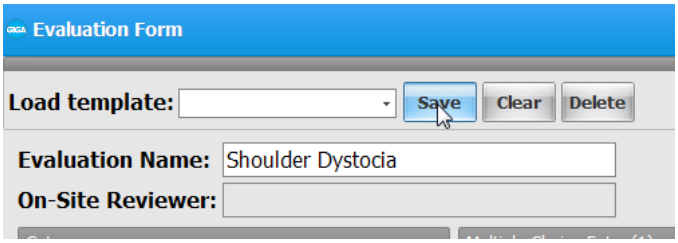
Type the evaluation statement in the new multiple choice field.



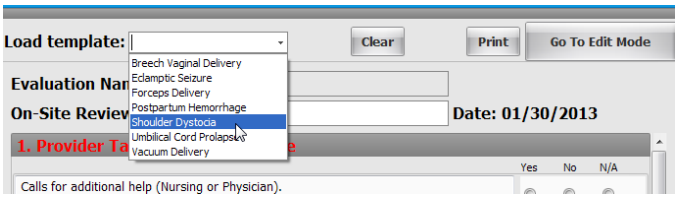
Repeat the previous steps to add more categories, questions, and multiple-choice options.



After the evaluation template design is complete, click Save at the top of the window.

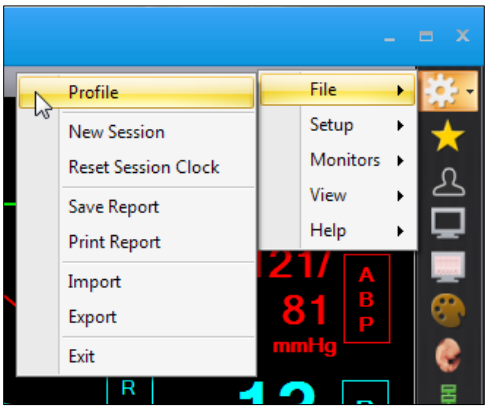


The evaluation form is now available for use.



Menus

File



PROFILE

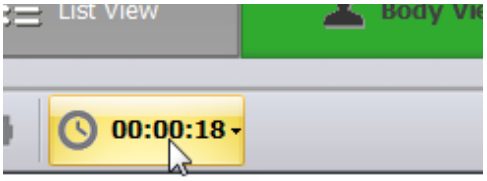
Click the Profile menu option to open the Profiles menu. To switch to a different profile, select the operating mode and the new profile and click “Load”.

NEW SESSION

Clicking New Session in the file menu will:

- Clear any loaded/playing scenario
- Clear any loaded/playing palette
- Reset vital signs to normal values
- Clear out log page
- Restart the session clock.

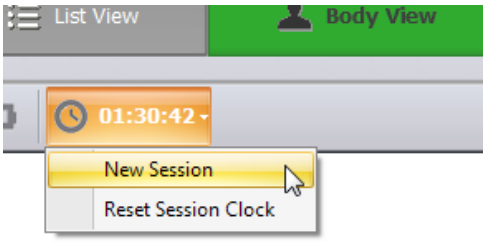
The session clock is located at the bottom of the dialog box.



The shortcut key for staring a new session is: **Ctrl + N**

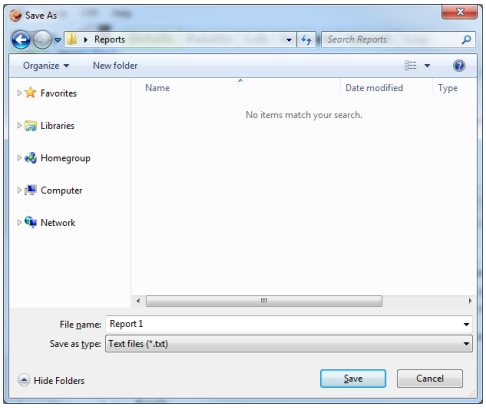
RESET SESSION CLOCK

Clicking on Reset Session Clock resets the clock back to zero. It does not have any effect on the transition time remaining on a scenario; it does not reset the vital signs, or clear out loaded scenarios. The facilitator can also reset the session clock by clicking on the Session button next to the session time.



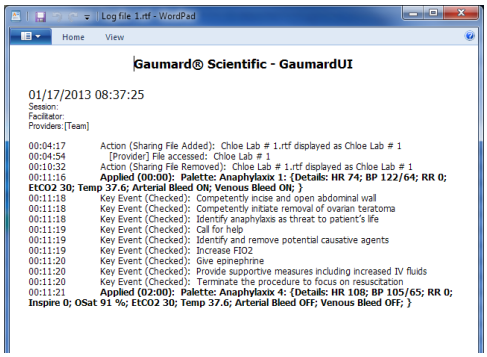
SAVE REPORT

This option allows you to save all the information recorded in the log page as a text file. Clicking on it brings up the “Save As” dialog box:



Select the desired name and path, and click “Save”.

The shortcut key for saving a report is Ctrl + S. For a sample report, look at the figure below:



PRINT REPORT

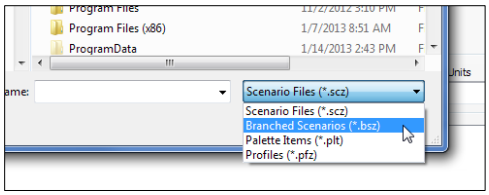
This option allows you to print a text file containing all the information in the log for the latest session. Clicking on “Print Report” brings up the Print dialog box. The shortcut key for this option is **Ctrl + P**.

IMPORT

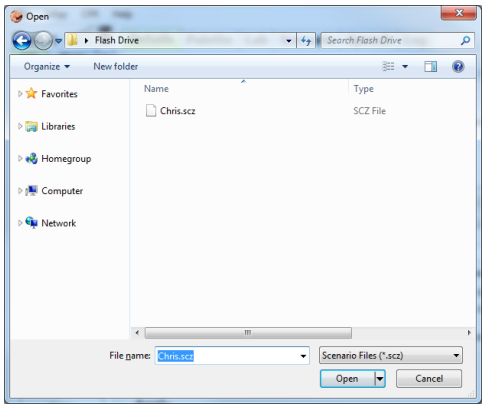
Use the “Import” menu to import palettes, scenarios, and modeling patients created on another PC or stored in a backup location.

To import an item into GIGA:

1. Click File>Import on the menu to access the “Open” menu.
2. Set the type of file to import.



3. Browse to the location where the item is saved and click “Open” to import.



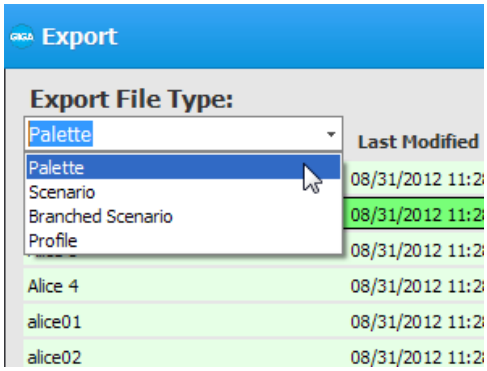
The scenario file is copied to the GIGA scenario library automatically.

EXPORT

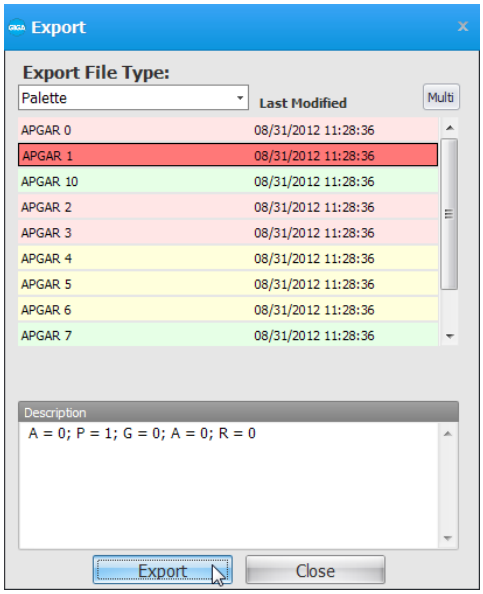
Use the Export feature to backup palettes, scenarios (branched or linear), and model patients files.

To export an item and save it to a location on the computer:

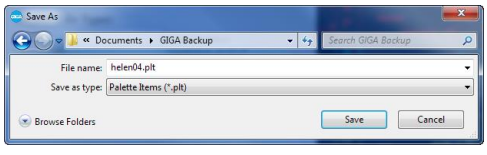
1. Click File > Export to open the “Export” menu
2. Select the file type from the “Export File Type” drop down menu:



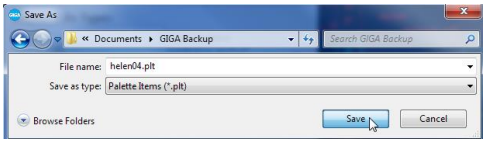
3. Select the item to export from the list and click “Export”



The “Save As” window is displayed.



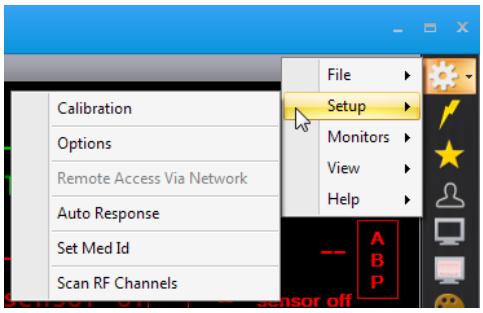
4. Browse to the location where the file will be saved and click “Save”.



EXIT

Click File > Exit to close the GIGA software and turn the simulator off. Alternatively, click the power bottom and click the X icon near the top corner of the screen.

Setup



CALIBRATION

Use the Calibration menu to calibrate the simulator’s features, and to reset the sensors back to default settings.

The procedures for each specific calibration are described in the sections below.

CHEST COMPRESSIONS

The chest compression calibration wizard records the average depth (as pressure) of 5 chest compressions. GIGA evaluates provider performance using the information recorded during the calibration as the correct benchmark.

To calibrate the compression performance benchmark:

1. Click Setup > Calibration > Chest Compressions, and click “Next”

   The wizard prompts to perform compression “#1”

2. Perform one chest compression correctly. A green filled oval indicates that the chest compression was recorded successfully.

3. Perform chest compression # 2 as prompted by the wizard. A green filled oval indicates that the chest compression was recorded successfully

4. Continue the calibration process to record a total of 5 compressions as prompted by the wizard

At the end of the calibrating session, the wizard reports the average peak, pressure, and duration values for the procedure. Click “Save” to store the settings.

Please test the compressions calibration using the CPR trainer. Go to page 66 learn more about the CPR trainer and the feedback graphic.

VENTILATIONS

The ventilation calibration wizard records the average pressure of 5 ventilations. GIGA evaluates provider performance using the information recorded during the calibration as the correct benchmark.

To calibrate the ventilation performance benchmark:

1. Click Setup > Calibration > Ventilations, and click “Next”

The wizard prompts to perform ventilation “#1”

2. Perform one ventilation correctly. A green filled oval indicates that the chest ventilation was recorded successfully

3. Perform ventilation # 2 as prompted by the wizard. A green filled oval indicates that the ventilation was recorded successfully
4. Continue the calibration process to record a total of 5 ventilations as prompted by the wizard

At the end of the calibration process, the wizard reports the average peak, pressure, and duration values for the procedure. Click “Save” to store the settings.

Please test the ventilation calibration using the CPR trainer. Go to page 66 learn more about the CPR trainer and the feedback graphic.

BLOOD PRESSURE CUFF

Calibrate the Blood pressure cuff feature if the Korotkoff sounds do not match the systolic and diastolic values set using the GIGA controls.

Before starting the calibration process, place the blood pressure cuff on the simulator as it would be placed on a real human patient.

Connect the blood pressure cuff's Luer-lock connector to the simulator's shoulder.

To calibrate the blood pressure feature:

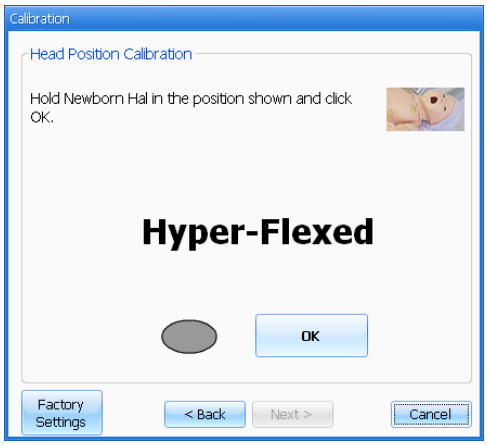
1. Click Setup > Calibration > Blood pressure and click “Next”
2. Verify which arm will be calibrate and click “Next”
3. Set the pressure on the BP cuff to 0 (i.e. cuff valve open) as prompted by the calibration wizard.
4. Click the “OK” button to record the current cuff pressure for the interval. A green filled oval indicates the pressure interval was recorded successfully.
5. Set the pressure on the BP cuff to 20 mmHg as prompted by the wizard. Click “OK” to record
6. Continue increasing the BP cuff pressure as indicated by the prompt and recording the pressure intervals.
7. At the end of the calibration wizard, click “Finish” to close the calibration wizard.

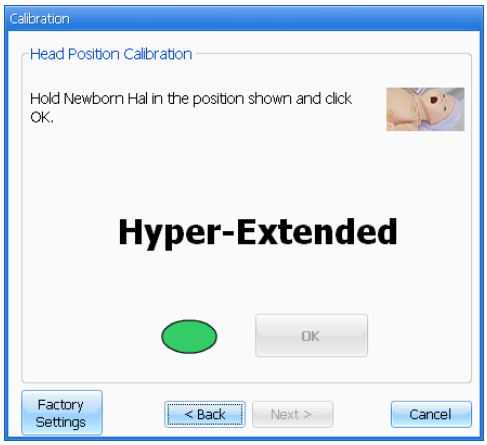
HEAD POSITION

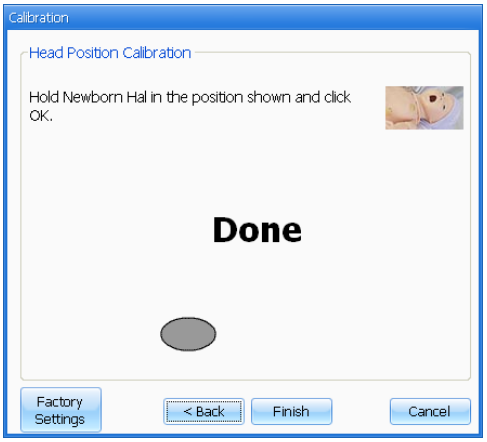
Head position calibration allows the facilitator to show the system at what point to obstruct air flow through the airway when the neck is hyper-extended or hyper-flexed.

Hold the head in the position shown (hyper-extended or hyper-flexed), with the desired level, and click the “OK”: button.

A green-filled oval indicates the value was successfully set.



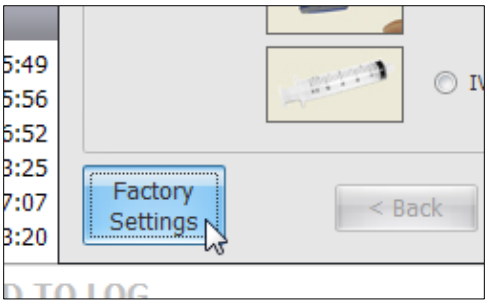




Once the prompt reads “Done”, the facilitator can go back and calibrate another function or click the “Finish” button to close the calibration wizard and go back to normal operation.

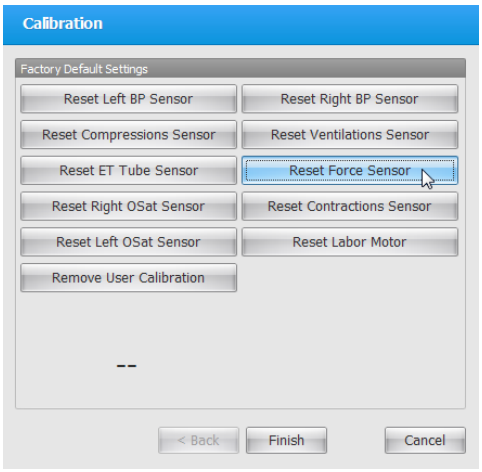
FACTORY SETTINGS

Use the Factory Settings menu to restore sensors settings back to the factory default values. Resetting the sensors deletes all current calibration settings.



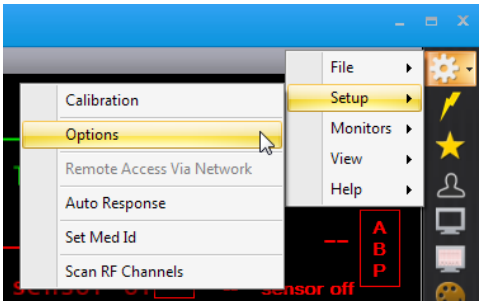
Remove all adjuncts, or peripherals that may alter the neutral state of a sensor prior to resetting it.

Click the sensor button to reset it to the factory setting. Please reference the directions for use guide for troubleshooting information.



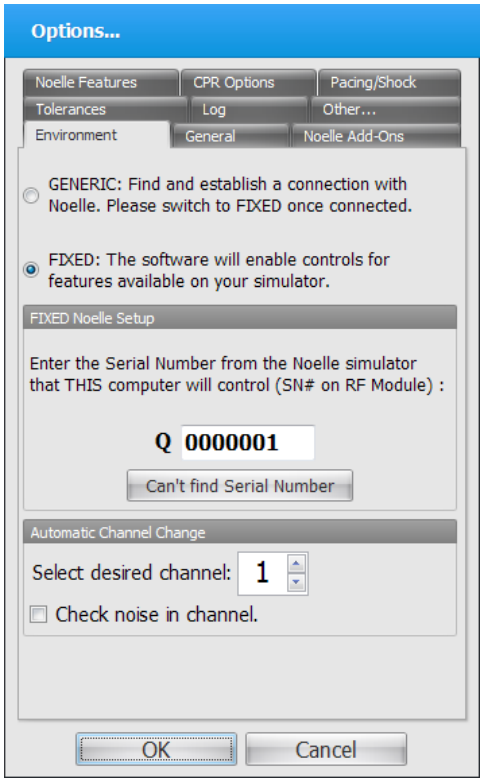
OPTIONS

Navigate through the Options menu to configure software settings and enable additional features.



ENVIRONMENT

The environment tab is used to configure the connectivity options. Select the “GENERIC” option to scan and connect to the nearest simulator. Alternatively, select the FIXED option and enter the simulator’s serial number to connect to a specific simulator only. The FIXED mode is required to enter activation code for upgrade features.



Manually assign a unique channel for each simulator to prevent crosstalk when operating multiple Gaumard simulators in close proximity. For best results, leave one channel open between the channels in use.

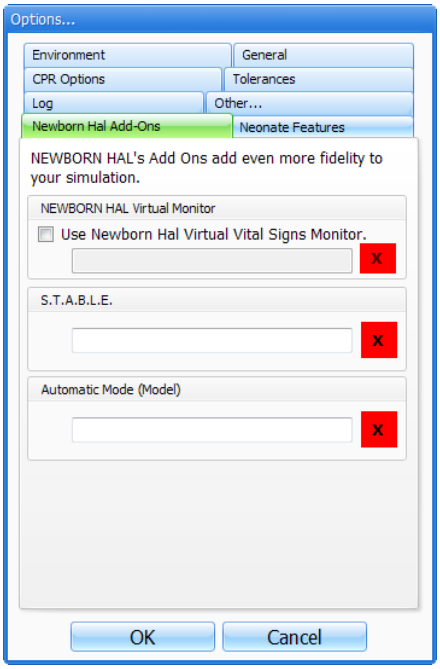
TOLERANCES

Use the Tolerances to adjust the maximum cyanosis level

NEWBORN HAL ADD-ONS

Enter the activation code to enable upgrade features. Activation codes are unique to the simulator’s serial number. Before entering a code, go to the Environment tab and set the connection mode to FIXED, then enter the simulator’s serial number.

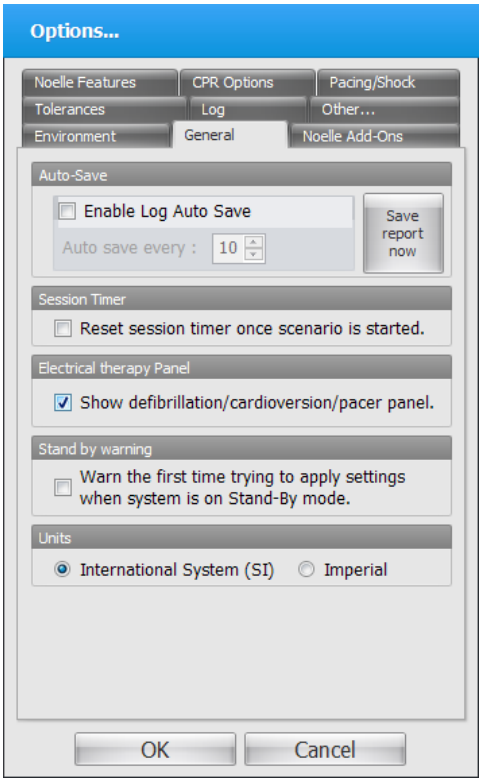
- Virtual Monitor - Enable the “Monitors” menu option to configure the virtual monitor connection. To verify the connection status between GIGA and the Gaumard Monitors, go to page 114.
- S.T.A.B.L.E. – Activate the (S.T.A.B.L.E.) scenarios.
- Automatic Mode – Activate the Automatic mode and the physiologic model.



GENERAL

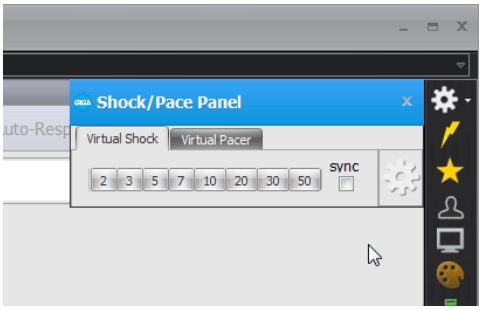
This tab allows the facilitator to:

- Enable auto saving of the log.
- Save your current log report.
- Enable stand-by warning.
- Select units (SI or English).
- Enable electrical therapy virtual shock panel



Checkmark the “Defibrillation/ Cardioversion Panel” to show the virtual “Shock Panel” shortcut on the main screen.

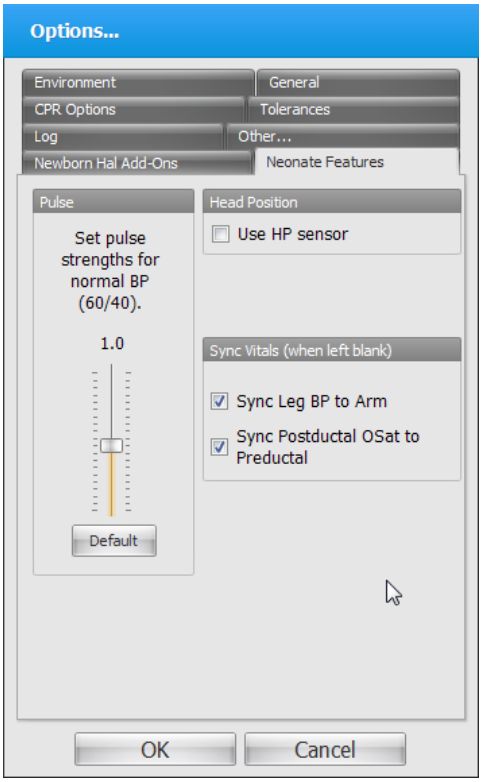
The shock panel is a floating control used by the facilitator to administer electrical therapy to the patient via software. For more information on working with the shock panel during a scenario, go to page 103.



NEONATE FEATURES

Customize the following simulator specific features:

- Fine-tune the pulse intensity for normal blood pressure.
- Synchronize the leg blood pressure to the arm blood pressure when the values are not specified.
- Synchronize post-ductal and pre ductal oxygen saturation parameters when values are not specified.
- Use temperature sensor



CPR OPTIONS

Use the controls in this window to adjust error margin allowed by the CPR intensity and rate:

- Compression to ventilation ratio
- Compression rate per minute
- Ventilation rate per minute
- Average of compression depth
- Average of PIP (peak inspiratory pressure)

OTHER

Checkmark "Once a 'Palette' is applied load to “Details Tab"' to show the value of each of the palette’s vital signs parameters on the Detail’s tab control entries.

AV SYSTEM

GIGA is capable of interfacing with a number of third-party A/V recording systems. Checkmark the “Use AV System” to enable the AV setup option on the menu bar. For more information about the A/V menu, go to page 115.

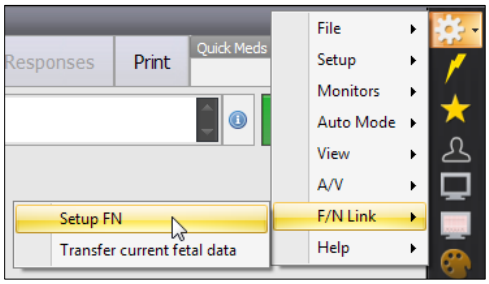
Fetal Neo Link (Auto Mode)

The “Fetal Neo Link” transfers the fetal vital signs to the Newborn/Premie Software at end of the delivery. The feature allows the providers to continue simulation using the full featured neonate without interruptions.

NEWBORN HAL FETAL NEO LINK SETUP

To configure the fetal link communication between the Newborn HAL and Newborn/Premie computers:

1. Click F/N Link > Setup FN open the Fetal - Neo Link connection menu



2. Set the adapter to “Wireless network connection
3. Enter a port number for the connection and click “Connect”. If the port number is busy, click “Find Available” to scan for an open port.

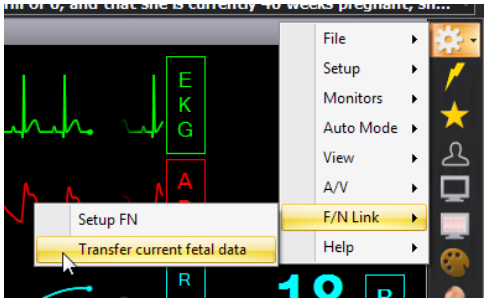
Newborn HAL / Preemie Fetal Neo Link Setup

4. Open the “Setup F/N” menu on Newborn HAL /Premie HAL tablet.
5. Enter the NEWBORN HAL controller IP and the matching port number and then click “Connect”.

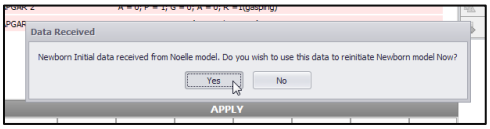
The Fetal Neo Link is now connected. For information on how to troubleshoot connectivity issues, please reference the appendix.

USING THE NEO LINK

The fetus vital signs information is transferred at the end of the delivery automatically. Aternatively, click “Transfer current fetal data” to send the information manually.

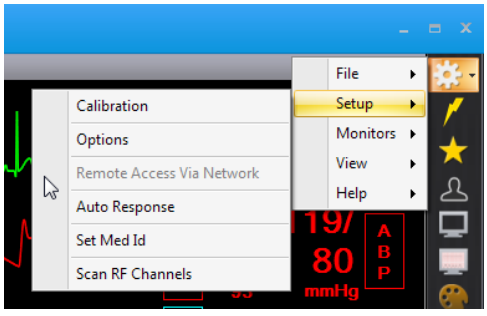


A prompt is displayed on the Newborn HAL / Premie software to accept the incoming neonatal vital information. Click “Yes” to load the vital signs information.



REMOTE ACCESS VIA NETWORK

The “Remote Access via Network” feature allows GIGA to communicate with the simulator remotely using the virtual monitor PC as the RF transmitter. The alternate configuration may provide better connectivity in environments with numerous walls or obstructions between the simulator and the control PC.



The USB RF module drivers must be installed on the virtual monitor PC before the “Remote Access via Network” feature can be configured.

Go to www.Gaumard.com to download the latest USB RF module drivers using PC with internet access. Do not connect the Virtual Monitor PC to the internet. Transfer the USB RF module setup file to the virtual monitor PC using a USB drive and complete the installation.

To configure the “Remote Access via Network” connection:

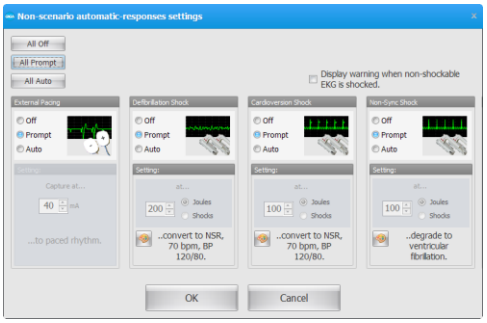
5. Connect the simulator’s USB RF module an available USB port on the virtual monitor PC
6. Verify that both computers are connected to the ad-hoc network (e.g. GaumardNet,)
7. Initialize GIGA on the tablet PC open the Remote Access via Network menu from the Setup menu
8. Select the Remote access via network radio button
9. Verify that Wireless Network Connection is selected from the adapter list
10. Click “Find available” to auto configure the port used for this connection
11. Write down the controller IP and port number, then click “Connect”
12. Navigate to the V menu on the virtual monitor computer and select “Remote access Via Network”
13. Please wait 30 seconds for the feature to initialize
14. Enter the “controller IP” and “port number” as shown on step 7 and click “connect”

AUTO RESPONSES

The Non-Scenario Automatic Response feature allows the facilitator to set preprogrammed responses to electrical therapy events. When the electrical therapy is detected, auto-responses can automatically load a specific palette item or prompt the facilitator before making preprogrammed changes to the simulator’s vital signs.

Warning: Do not defibrillate or pace Newborn HAL/Preemie with real medical equipment. Doing so will result in damage to the simulator’s internal components.

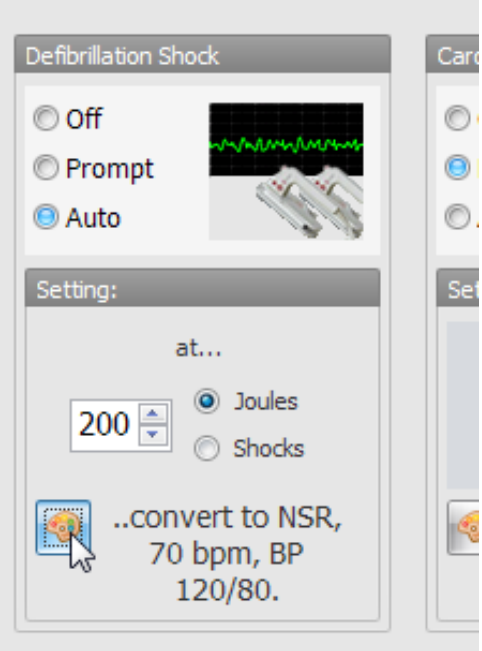
Non-scenario response settings detect electrical therapy administered when a scenario is not in progress. For information on how to configure auto-responses for use during a scenario, go to page 46. To activate the virtual shock panel for administering electrical therapy virtually, go to page 115



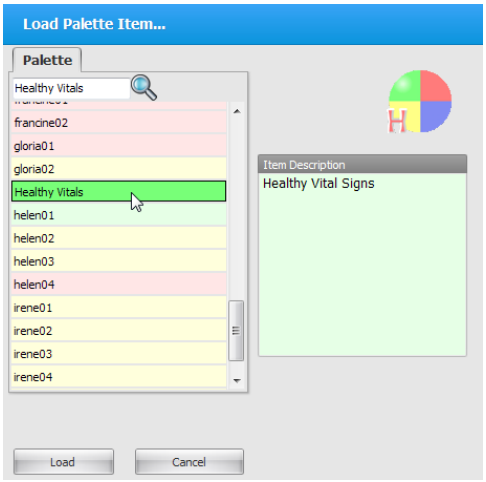
The behavior of each auto response option is explained below:

- Off - The software does not respond to the electric therapy
- Prompt - The software detects the electrical therapy and prompts the facilitator before applying the changes configured in the “Settings” section.
- Auto - The software automatically detects the electrical therapy and compares it to a threshold selected by the provider. If the threshold is met, the vitals will automatically change to the parameters specified on the “Settings” section.

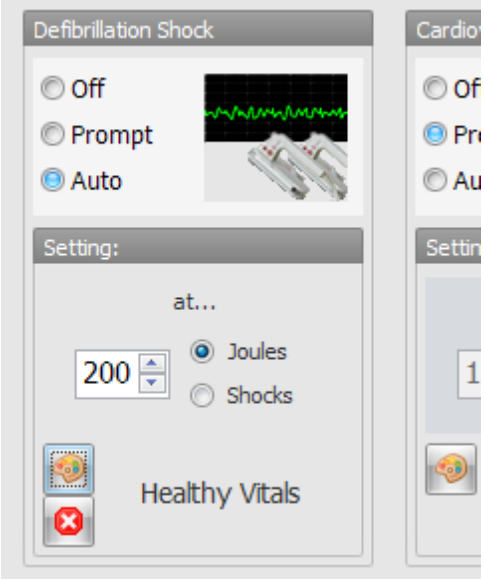
Each type of electrical therapy has a unique set of default parameters. For example, the default response to a defibrillation Shock applies the following vital sign parameter changes: NSR, 75 bpm, BP 120/80. Click the palette button to program a specific palette item as an auto-response.



Select the desired palette from the “Load Palette Item…” window and click “Load”.



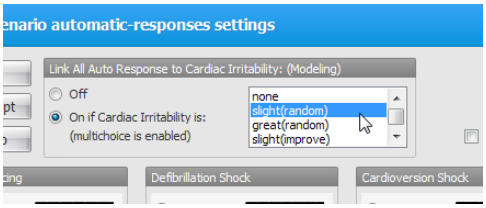
The defibrillation shock auto-response is now configured apply the “Healthy Resting” palette if a virtual defibrillation shock of 200 Joules or greater is detected. The programmed response palette is listed in the “settings:” panel.



AUTOMATIC MODE NON-SCENARIO AUTOMATIC RESPONSES

The “Automatic Mode non-scenario Automatic Responses” are unique to the automatic mode.

Link All Auto Response to Cardiac Irritability - Auto-responses will work only if the cardiac irritability option on the details page matches the selection on this window.



An event prompt is displayed if electrical therapy is detected and the cardiac irritability set does not match the selection on the responses window.

Drug Model Effect – Configure the auto-response behavior for drug administration.

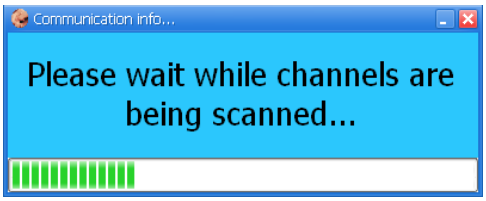
- Auto – Apply the drug effects based on medication’s programmed properties and dosage

Prompt – Display a confirm prompt before applying the drug’s effects

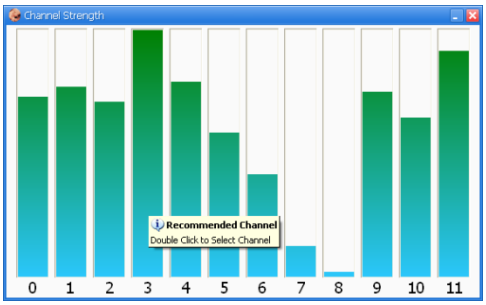
SCAN RF CHANNELS

Use the Scan RF Channel tool to search for the strongest RF communication channel available.

Click the “Scan RF Channels” option in the setup menu to start the scan. Please wait while the system completes the process.

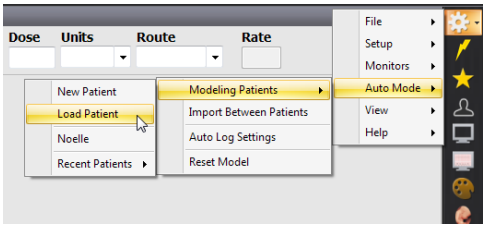


The tallest bar represents the strongest channel. Double click the bar to connect to the simulator using the channel selected.



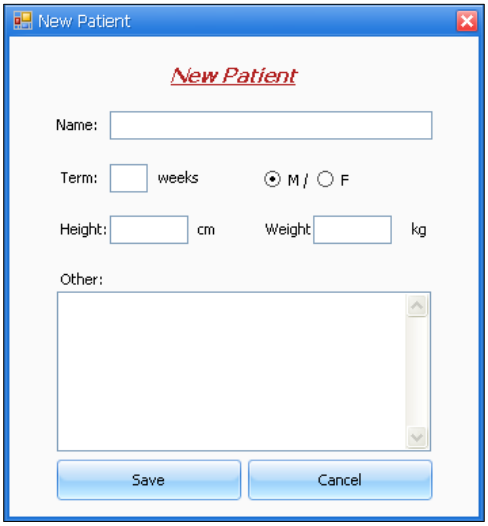
Auto Mode (Upgrade)

The “Modeling” drop down menu in the top left corner of the GIGA contains four options: Modeling Patient, Reset Model, Import Between Patients, and Auto Log Setting. Use the modeling patients menu create new patients and to copy items from one patient to another.



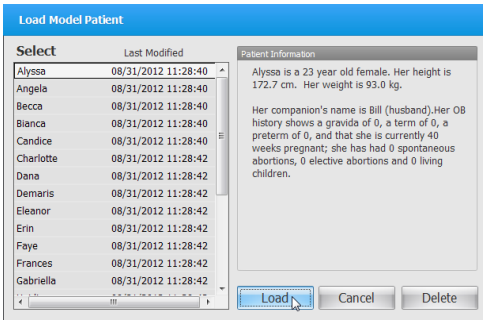
MODELING PATIENTS

To create a new auto mode patient, go to Modeling > Modeling Patient > New Patient. The new patient window is displayed.



Enter the name of the patient, age, gender, height, weight, and/or additional notes. Then, click “Save”.

To load an already existing patient, go to Modeling, Modeling Patient, Load Patient.



Select the desired patient, and click on Load. Notice that the factory pre-set patient cannot be deleted, as opposed to any of the patients that you create yourself, which can be deleted.

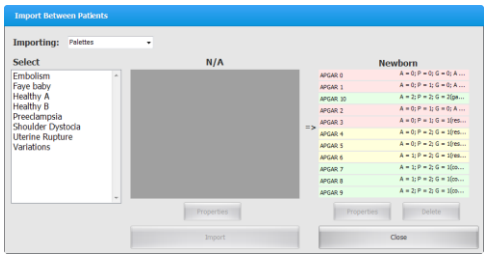
Patient information is displayed on the right side and near the top of the Details tab.

RESET MODEL

Clicking on Reset Model under the Modeling drop down menu, will restore all vitals and physiologic controls to normal state. For instance, if the ECG rhythm is currently on Ventricular Fibrillation, clicking on reset model changes the ECG rhythm back to sinus.

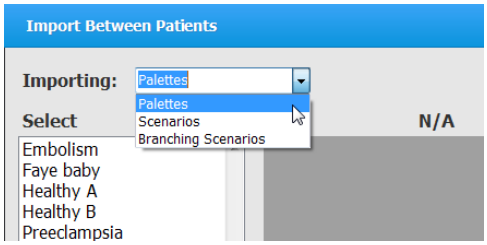
IMPORT BETWEEN PATIENTS

Use the “Import between patients” menu to import palettes, scenarios, and branching scenarios from other patient profiles into the current active one.

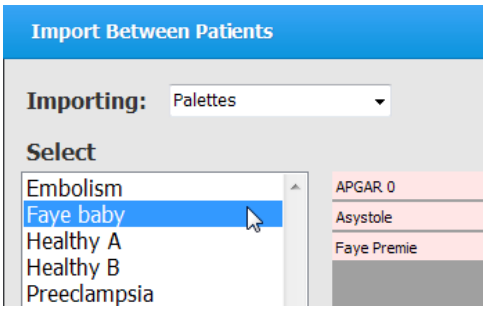


To import an item another patient in to the active patient:

1. Click Auto Mode> Import Patient to open the ”Import” menu
2. Select the item category to import

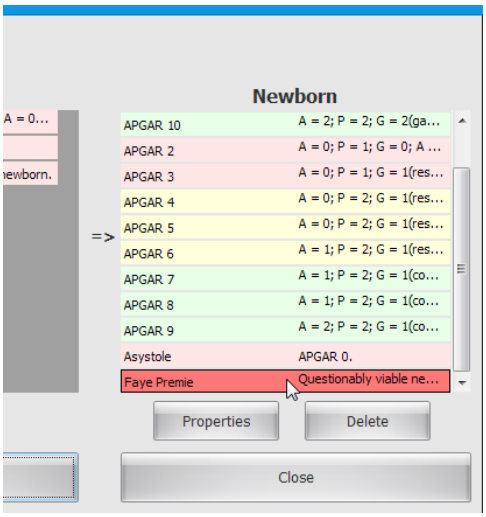


3. Select the patient name that contains the items to be imported into the active patient



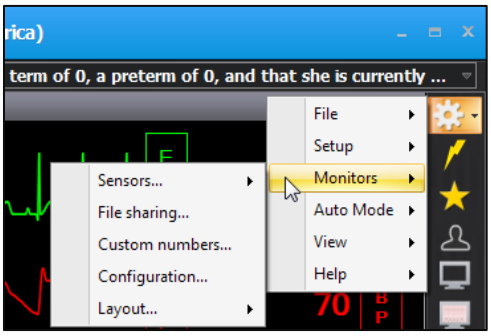
4. Select the items to import from the list and click “Import”

The palettes are now copied into the active patient.



Monitors

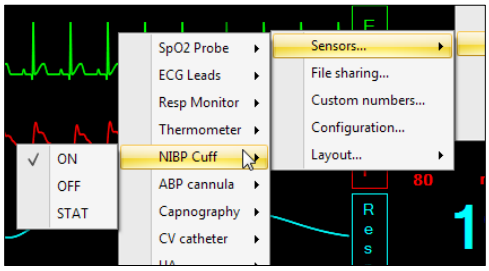
Use the Monitors drop down menu to enable/disable sensors on the virtual monitor screen, share files, program custom scalars, and verify the connection between the GIGA and Gaumard Virtual Monitor software.



If the "Monitors" drop down is not showing, go to Setup>Options> Add-ons, and checkmark "Use Virtual Vital Signs Monitor."

SENSORS

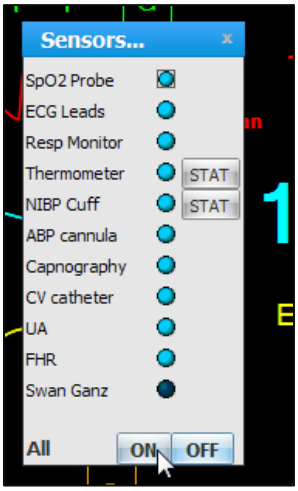
Use the sensors option to enable or disable any of the waveforms displayed in the vital signs monitor. Select the waveform and click "ON" to display the readings on the virtual monitor screen. To disable a parameter reading, click "OFF". The vital signs monitor sensors defaults to "All On."



Some sensors, such as NIBP and Thermometer are equipped with a STAT control that will allow the facilitator to activate readings on the virtual monitors from the controller software.

SENSOR CONTROL WINDOW

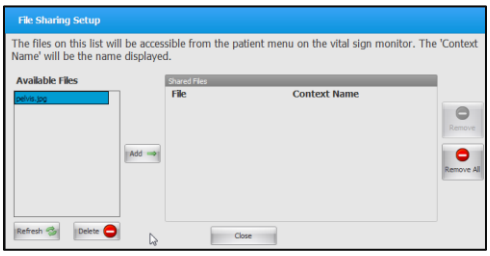
The sensor control window is a floating panel with on/off toggle controls. Click Monitors> Sensors> Window to open the floating sensor control panel.



Single click the circular icon to enable or disable the sensors displayed on the virtual monitor screen. Click the circle dark to disable the sensor and light blue to re-enable it. In the example above, all the sensors are on except the thermometer.

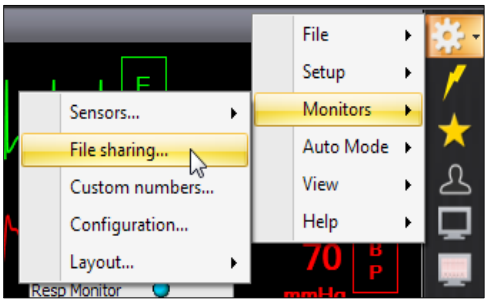
FILE SHARING

The file sharing menu allows the facilitator to send images, audio, and text files to the virtual monitor screen. Use the file sharing feature to fulfill file requests by the provider during simulation.

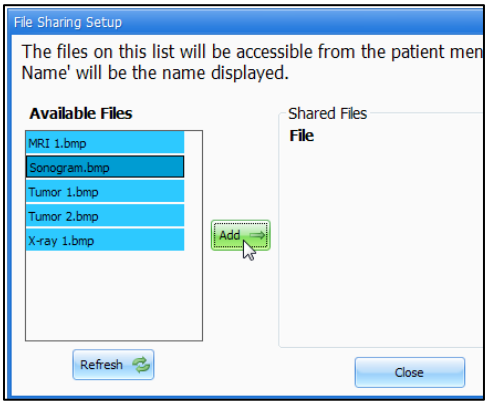


The files used for sharing are stored in the control PC. Before the simulation begins, add mock image (.jpg, .bmp) or text files (.txt) into the Gaumard_UI folder located on the home screen of the control computer.

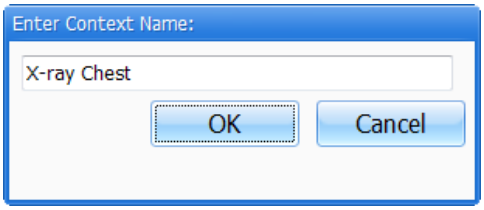
Open the “File Sharing” from the menu. Also, clicking on the file sharing icon will open this window.



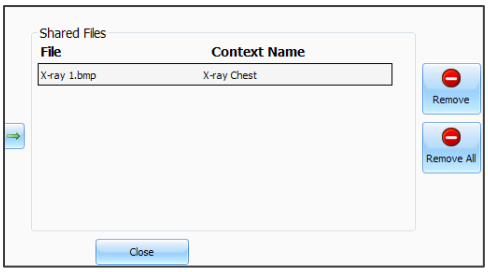
The “File Sharing Setup” menu is used to manage files shared with the virtual monitor software. The list of files stored on the Gaumard_UI folder available for sharing is displayed on the left panel. To share a file, first select the file from the left panel and click the “Add” button.



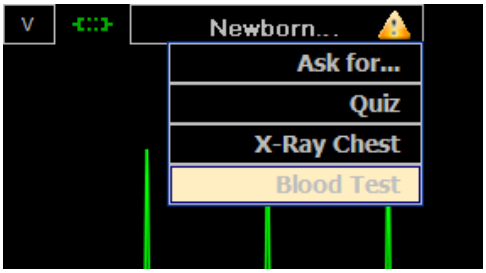
Enter a context name on the pop-up menu and click “OK” to share.



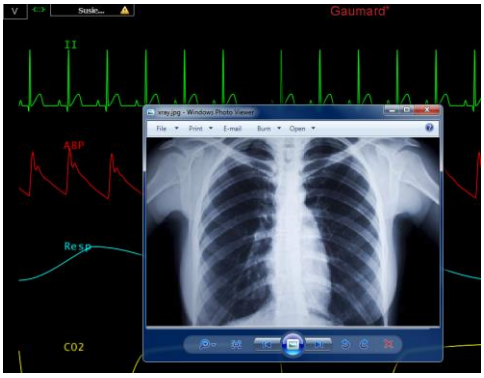
Files currently shared are listed on the “Shared Files” list.



Once a file is added to the “Shared Files” list, a yellow notification icon is shown on the patient menu at the top left of the virtual monitor screen. The icon notifies the provider that a file is available for viewing. Click on the patient name button to bring down the selection of available files and select the context name to open.



The x-ray file is now open.

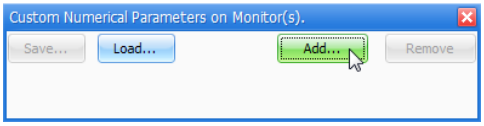


To troubleshoot file sharing access errors go refer to the Gaumard Monitors Guide.

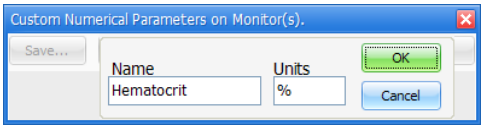
CUSTOM NUMBERS

Use the custom numbers menu to add custom numerical parameters to the virtual monitor main screen, such as a glucose levels or a platelet count.

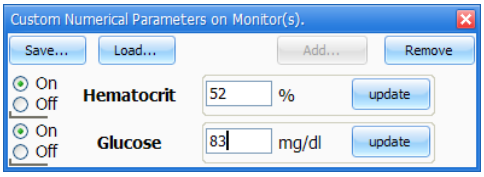
On the GIGA menu bar, click Monitors>Custom Numbers, to open the “Custom Numerical Parameters on Monitor” menu. Click the “Add” button to create a new parameter.



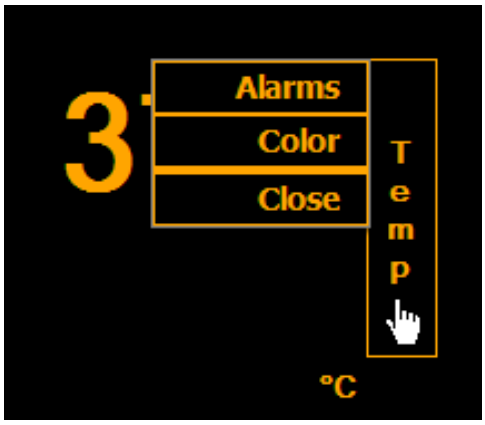
Type the name and units of the new parameter and then click “OK”.



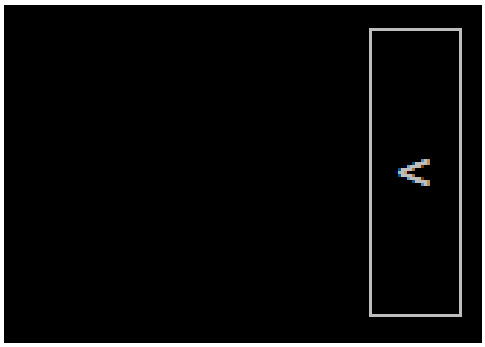
The scalar parameter is now created. Enter a value for the parameter and click “Update”.



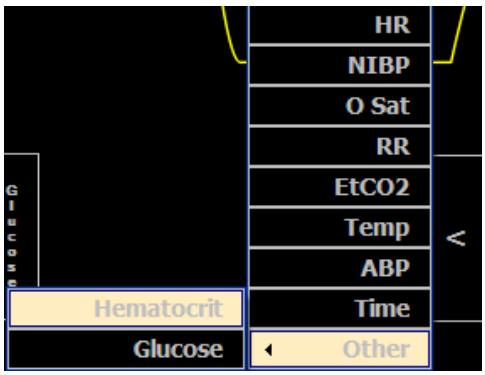
On the virtual monitor screen, click on a scalar’s menu and select “Close” to make the entry available for the custom parameter.



The scalar entry is now a blank field.



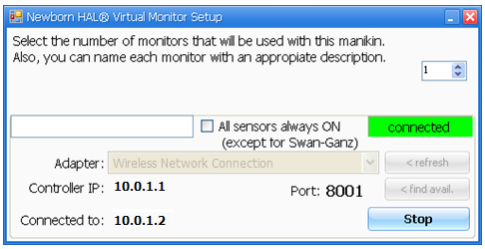
Click on the empty scalar menu and select “Other” from the list of available scalar parameters. Select the name of the custom parameter.



The figure below shows two new values: Glucose level and hematocrit levels. Return to the custom parameter menu on the GIGA software to update the values when necessary.

CONFIGURATION

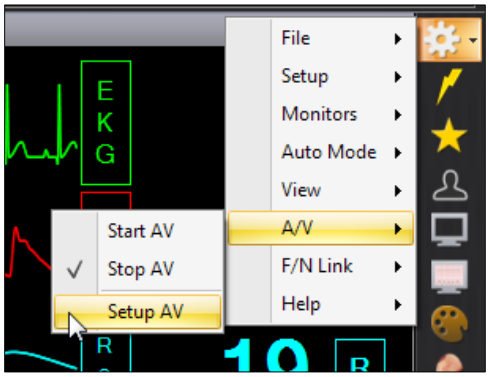
On the GIGA menu bar, click Monitors>Configuration, to open the virtual monitor setup window. Use the virtual monitor setup window to verify the connection between the GIGA software and the Gaumard Monitors vital signs software, re-configure the communication ports and view the controller IP address. To troubleshoot connectivity issues, go to page 141.



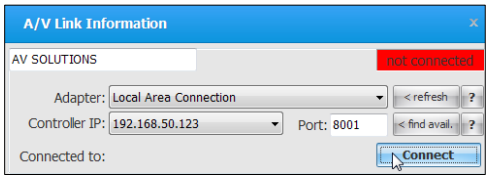
A/V (Audio & Video)

GIGA is capable of interfacing with a number of third-party A/V recording systems. Generally, A/V solutions capture footage of the simulation and interlace it with the event information generated by the simulator control software.

To enable the fetal Neo link menu option, go to Set Up > Options > Other and checkmark “Use AV System”.



Click “Setup AV” to configure the software connection to the AV system. Enter a port number for the connection and click “Connect” to establish a link. Please contact the AV administrator for information on how to accept incoming connections from the GIGA software.



Return to the A/V menu and click “Start AV” to initialize the recorder. Some third party A/V solutions may not recognize the “Start” command generated by the log event. If the recorder does not start remotely, please start the new video manually using the third party controls.

The log event does not command the recording to stop at the end of the scenario automatically. Click Stop A/V from the menu to end the recording.

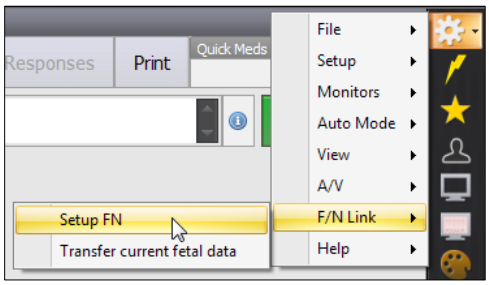
Fetal Neo Link (Auto Mode)

The “Fetal Neo Link” transfers the fetal vital signs to the Newborn/Premie Software at end of the delivery. The feature allows the providers to continue simulation using the full featured neonate without interruptions.

NOELLE FETAL NEO LINK SETUP

To configure the fetal link communication between the Noelle and Newborn/Premie computers:

1. Click F/N Link > Setup FN open the Fetal - Neo Link connection menu



2. Set the adapter to “Wireless network connection
3. Enter a port number for the connection and click “Connect”. If the port number is busy, click “Find Available” to scan for an open port.

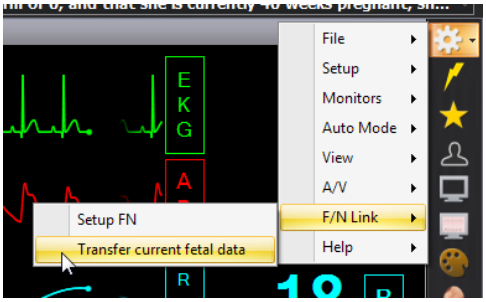
Newborn HAL / Preemie Fetal Neo Link Setup

4. Open the “Setup F/N” menu on Newborn HAL /Premie HAL tablet.
5. Enter the NOELLE controller IP and the matching port number and then click “Connect”.

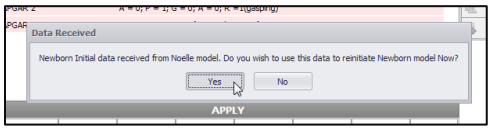
The Fetal Neo Link is now connected. For information on how to troubleshoot connectivity issues, please reference the appendix.

USING THE NEO LINK

The fetus vital signs information is transferred at the end of the delivery automatically. Aternatively, click “Transfer current fetal data” to send the information manually.

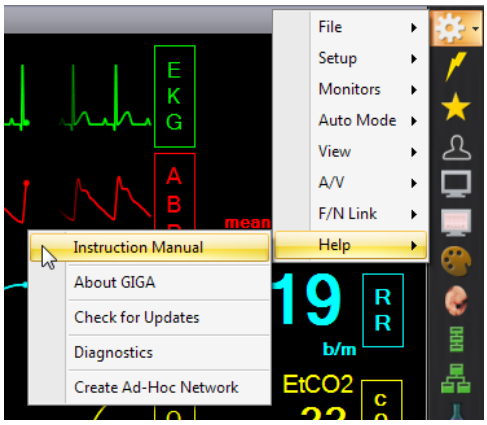


A prompt is displayed on the Newborn HAL / Premie software to accept the incoming neonatal vital information. Click “Yes” to load the vital signs information.



.

Help



INSTRUCTION MANUAL

Click the Instruction Manual option to open a digital copy of the latest “User Guide” information.

ABOUT GUI

Click “About GUI” to view the software version.

CHECK FOR UPDATES

Redistributable GIGA installer files are available for download at http://www.gaumard.com/software-updates/.

To update the GIGA software using a flash drive:

1. Download the update file to a flash drive using a computer with internet access
2. Copy the setup file to the simulator’s control computer
3. Run the GIGA update file to update the software

Do not change the wireless network settings. Doing so will disconnect the virtual monitor computer and the Gaumard Monitors vital signs software.

To update the GIGA software using an Ethernet connection:

4. Connect an Ethernet cable to the laptop PC.
5. Click “Check for Updates”.
6. Click “Install” to begin the update. The download progress bar begins to auto-fill as the setup file is downloaded

After the download is complete, the update setup wizard is launched automatically.

7. Click “Next”, and follow the wizard to complete the software download.

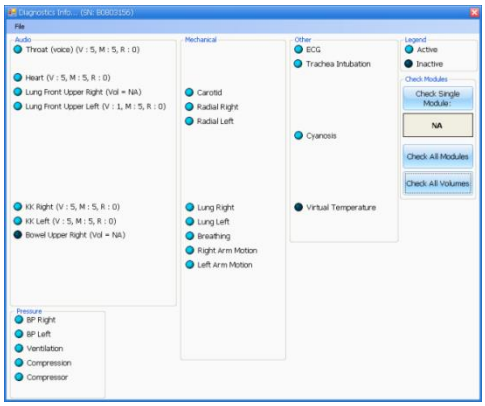
DIAGNOSTICS

The diagnostics menu is used to test the status of electronic and mechanical components in the simulator.

Click “Check all Modules” to run a full systems check. Active modules report blue. Modules that are inactive or not installed report black.

DIAGNOSTICS

Use this feature as a troubleshooting tool to verify the status of the simulator’s features. For more information on using the diagnostics screen for troubleshooting, go to page 147.



Working with Newborn HAL

Disclaimer: The section below describes all possible features in the Newborn HAL® simulator. The content of this table are subject to change without prior notice. Please contact Gaumard Scientific for the most current information.

Legend: Y = Yes N = No O = Optional

Category	Simulator Feature		
Airway	Nasal Intubation	Y	
	Oral Intubation	Y	
	Breathing/Airway Sounds	Y	
Breathing	Independent Chest Rise*	Y	
	Lung Sounds	Y	
Cardiac	Heart Sounds	Y	
	Chest Compressions	Y	
	ECG generated in real time	Y	4 patches
Circulation	Bilateral IV	Y	
	Bilateral virtual BP	Y	
	Pulses	Y	Fontanel, Brachial, Umbilical
	Cyanosis	Y	
	Disable Pulses	Y	Brachial
Systemic	Bowel Sounds	Y	Starting with SN: B0906425
	Male/Female Catheterization	Y	
	Head Position Sensor	Y	Hyper flexion disables chest rise
	Seizures	Y	
	Intraosseous access	Y	
Other	Physiologic Model	O	
	Instructor control/data change	Y	300 feet
	ETC Pro+	O	Audio/Video recording and debriefing
	Gaumard Virtual Monitor	O	

Airway

INTUBATION

Newborn HAL's airway can be intubated orally using LMA or endotracheal tubes and nasally using a nasogastric tube.

Procedure	Recommended Device Size
Intubation (Blade size)	Miller 0
LMA	Size 1
Nasal Intubation	8 Fr catheter
Oral Intubation	ETT 3.0 no cuff, 6 Fr suction catheter

Once intubated, sensors detect the depth of the intubation tube. Should the tube be inserted too deep, the left lung is automatically disabled realistically demonstrating right mainstem intubation. Correcting the tube position re-enables the left lung.

Warning:
Always lubricate tubing, airway, and nasal opening prior to performing any nasal or oral intubation. Failure to do so will make intubation very difficult and is likely to result in damage.

Do not insert liquids or spray silicone oil into the mouth and airway.

AIRWAY SOUNDS

HAL has multiple upper airway sounds synchronized with his breathing.

Breathing

BREATHING PATTERN

Control rate and depth of respiration and choose independent quadrant lung sounds synchronized with the available breathing patterns.

LUNG SOUNDS

Listen to the lung sounds using a stethoscope. Use the vital sign parameter controls to change between the available sound types. Volume controls for the lung sounds are located on the status panel.

BILATERAL CHEST RISE

Enable or disable the right or left lung independently.

PULMONARY VENTILATION

Ventilate using a BVM or a mechanical ventilator. To display chest rise during ventilation and receive feedback on the CPR window, set the lungs to the "Enabled" state and the respiratory rate to 0. For more information on the CPR trainer, go to page **Error! Bookmark not defined.**.

Cardiac

HEART SOUNDS

Auscultate realistic heart sounds synchronized to the heart rate and heart rhythms.

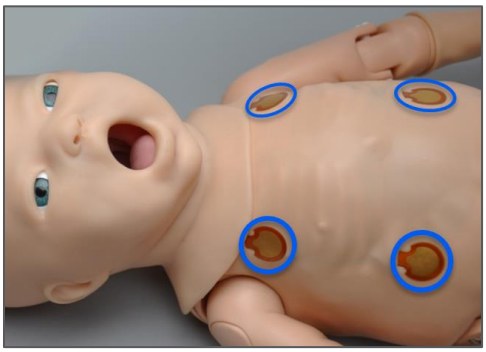
CHEST COMPRESSIONS

During cardiac arrest, chest compressions are measured and logged. Use the CPR window to assess CPR technique and effectiveness by monitoring cadence and depth in real time. For more information on the CPR trainer, go to page **Error! Bookmark not defined.**.

ECG MONITORING AND ELECTRICAL THERAPY

The conductive skin sites allow the use of real EKG electrodes. Track the cardiac rhythm with real equipment just like with a human patient.

Warning:
Do not pace or defibrillate the simulator. Doing so will result in damage to the simulator.



Use the virtual shock panel to simulate the administration of electrical therapy via software. To enable the virtual shock panel feature, go to page 103.

Circulation

PALPABLE PULSES

Palpable pulses are dependent on blood pressure. Use the software controls to disable distal pulses and simulate severe hypotension.

PROGRAMMABLE BLOOD PRESSURE

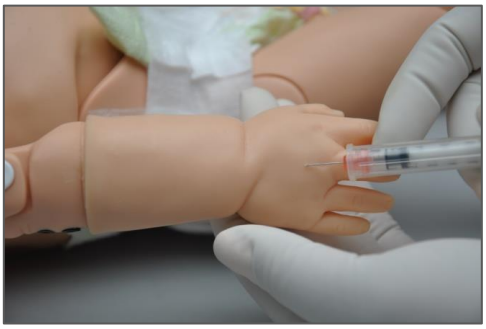
Use the modified sphygmomanometer included with the system to get blood pressure readings controlled by GIGA. In addition, auscultate the Korotkoff sounds using a stethoscope.

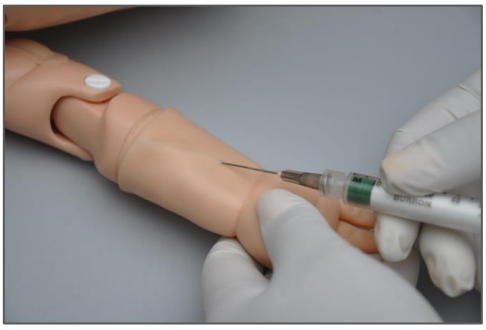
CONNECTING THE MODIFIED CUFF

Connect the Luer-Lok fitting on the end of the extra branch to the Luer-Lok port on the simulator's left shoulder.

INTRAVENOUS EXTREMITIES

Bilateral IV training arms allow intravenous infusions as well as drawing fluids.





Procedure	Recommended Device Size
IV Access	23 gauge needle

FILLING THE IV VASCULATURE

Follow the steps below to fill the IV vasculature for drawing fluids.

1. First, locate the fill syringe with fill tubing, the drain tube with pinch-clamp, the luer- connectors, and stoppers (included in your simulator packaging).

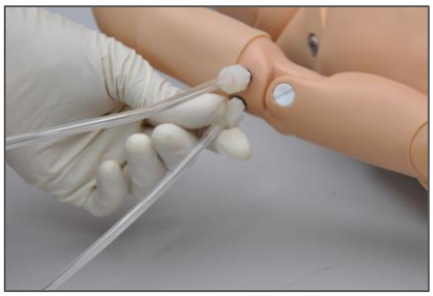
The threaded ports, located on both lower arms and left lower leg of the newborn, are used for filling and draining the IV system.

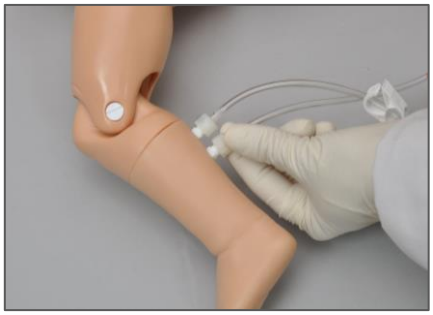
2. Fill the modified syringe and the fill tubing with water or diluted, Gaumard, simulated blood.

3. Connect the fill and drain luer-connectors to lower arm/leg threaded ports as shown below

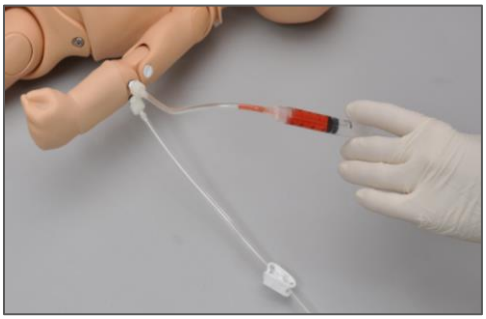
Warning:
Do not over tighten the luer-connectors into the newborn's ports.

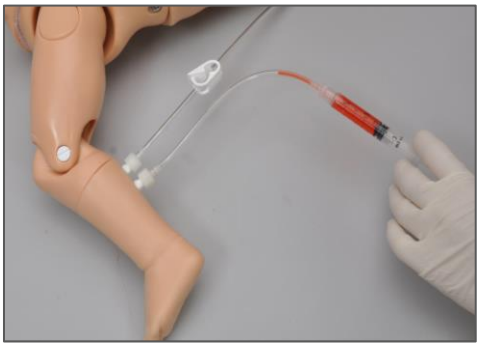
4. Connect the drain tube with clamp to one of the connectors and the fill tubing with syringe to the other connector.



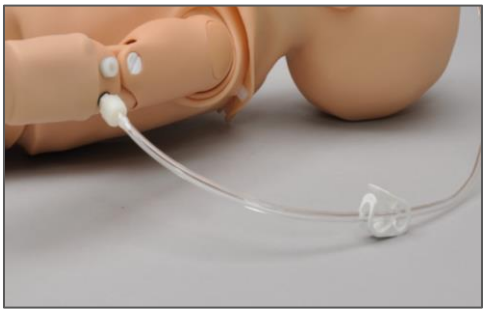


5. Leave the drain tube's clamp open and depress the syringe until air has been purged from the IV system and fluid runs from the drain.





During infusion exercises, always connect the stopper to one port and leave the drain tube attached to the other port. Direct the outflow into a collection container.

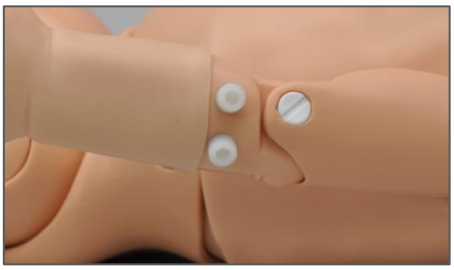


Use flashlight to detect dorsal pedal injection site on the left foot veins. (simulators with serial number B0906424 or higher ONLY).

Warning:
Fill the IV vasculature with diluted Gaumard simulated blood only. Any other simulated blood brand containing sugar or additives may cause blockage and/or interruption of the vasculature system.

Do not fill IV systems without the drain connector in place. Doing so could result in damage to the self-healing ports.

When finished with the IV simulations, flush and drain the IV vasculature and leave the stoppers connected to avoid leakage of any residual fluids.



INTRAMUSCULAR INJECTION SITES

IM sites are located on both deltoids and quadriceps for placement and technique exercises.

Warning:
Do not inject fluids into the intramuscular sites.

INTRAOSSEOUS ACCESS

The intraosseous access allows for infusing fluids, blood and/or drugs directly into the bone marrow of the tibia.

Remove the skin and the bone inserts to drain the fluid infused during an exercise. To get more uses from every bone insert, reseal the needle holes using cement glue.

Procedure	Recommended Device Size
IO Access	18 gauge

Cephalic

CYANOSIS

Control and program the cyanosis visible on the simulator. Use the Model tab to automate the change in cyanosis as the provider performs CPR intervention. For more information on the Model feature, go to page **Error! Bookmark not defined.**.

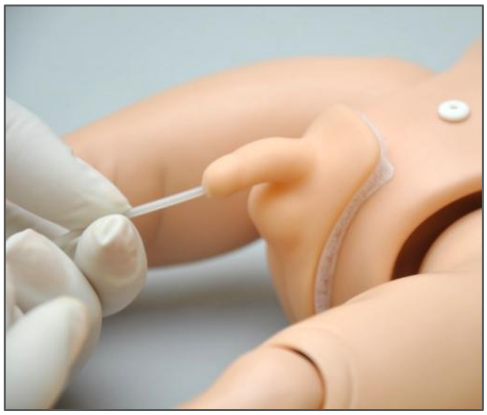
MUSCLE TONE AND SEIZURES

Control the movement of the simulator's arms by enabling any of the available muscle tone settings: limp, reduced, active, left arm only, right arm only, jittery or seizures. For a more pronounced movement effect, lay the simulator on a flat surface with the arms parallel to the ground.

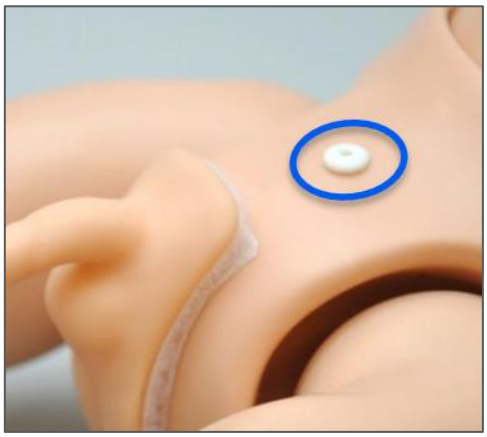
Systemic

CATHETERIZATION

Perform catheterization exercises via exchangeable male and female genitalia.



To fill the urine reservoir, remove the white cap and use the modified syringe to fill the bladder reservoir.



Procedure	Recommended Device Size
Urinary catheterization	Lubricated 5 to 8 Fr
Infusion	4 ml

UMBILICAL CORD (SYSTEM S/N B0906424 OR HIGHER)

Catheterize or inject the umbilical cord. To fill the umbilical cord with fluid, inject any of the three blood vessels with 2 mL of water using the syringe. For catheterization exercises, use a 6 Fr urethral round tip catheter lubricated with silicon oil.

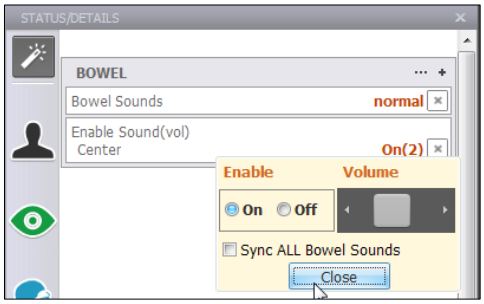
Procedure	Recommended Device Size
Umbilical Vein Catheterization	Lubricated 6 Fr urethral round tip
Infusion	2 ml

The replaceable umbilical cord can be trimmed or cut. Before removing or replacing the umbilical cord after an exercise, turn off the simulator by exiting the software (File>Exit), or set the simulator on STAND-BY mode. After the simulator is powered down, the umbilical cord can be safely unplugged. For information about ordering replacement umbilical cords, go to page 150.

Warning:
Do not remove umbilical cord while Newborn HAL is in operation. Doing so will cause damage to the system.

BOWEL SOUNDS (SYSTEMS S/N B0906424 OR HIGHER)

Auscultate the abdomen for normal and hyperactive bowel sounds.



Other

TEMPERATURE PROBE PLACEMENT DETECTION

The temperature reading on the vital signs monitor is displayed when a temperature probe is placed on the lower right quadrant of the abdominal area.

To enable the temperature sensor detection feature, go to Setup>Options>Neonate features Tab. Checkmark “Use temp. sensor” and click OK to save. The log panel detects the placement of the sensor.

VITAL SIGNS MONITOR

The virtual monitor touchscreen display simulates the functionality of a patient vital signs monitor. Users can customize the type of waveforms and scalars displayed, set alarms, and display lab reports, x-rays, and other files for the provider to access during simulation.

For information on how to setup Gaumard Monitors with GUI, please refer to the help File included with the Gaumard Monitors software.

PRO + (OPTIONAL)

The Pro+ system is an all-in-one session recording and simulator control solution for facilitators in a lab or mobile environment. The built in GIGA software allows the facilitator to control Newborn HAL while recording care provider interaction and event logs. The upgrade replaces the standard tablet with a convertible touchscreen laptop loaded with the Pro+ environment and GIGA, (2) WI-FI enabled cameras, (1) motorized 180 view USB camera and carrying case.

For more information on using the Pro + system, refer to the documentation included with the upgrade option.

Appendix

More about Scenarios

Factory Preset Scenarios

Newborn Scenarios	
Quick Start Newborn Profile	MANUAL - LINEAR
1	Alice’s Baby
2	Asphyxia
3	Beth’s (Dona’s) Baby
4	Cynthia’s Baby
5	Elaine’s Baby
6	Francine’s Baby
7	Gloria’s Baby
8	Helen’s (Irene’s) Baby
9	MAS
10	RDS
11	TTN

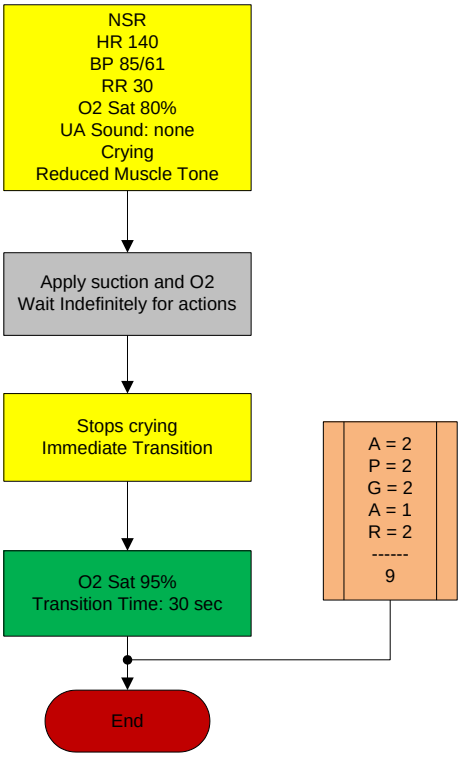
Meds Profile		Automatic - Linear
1	Adenosine OD	
2	Adenosine SD	
3	Adenosine UD	
Quick Start Newborn Modeling		**Automatic - Linear**
1	Variations A	
2	Uterine Rupture A	
3	Shoulder Dystocia A	
4	Preeclampsia A	
5	Healthy Baby B	**Baby was delivered SVD and is fairly vigorous**
6	Healthy Baby A	**is vigorous and earns good APGARS.**
7	Faye baby	
8	Embolism Baby A	
Quick Start Newborn Modeling		**Automatic - Branching**
1	**Variations branching**	

Gaumard®
Simulators for Health Care Education

Newborn HAL®

Alice's Baby

Healthy baby



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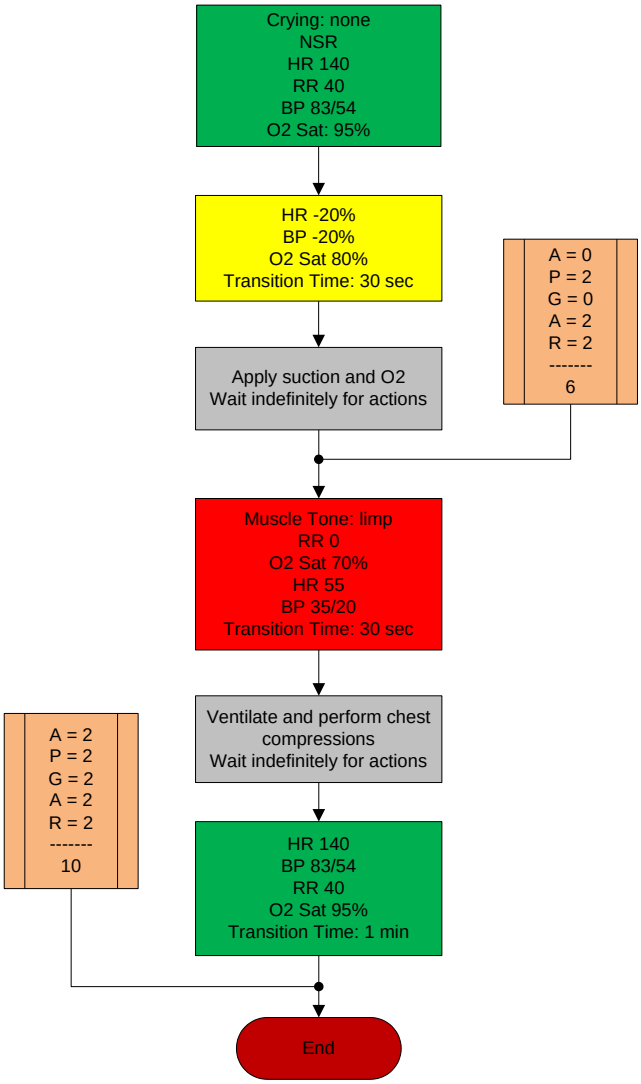
Newborn HAL®

Asphyxia

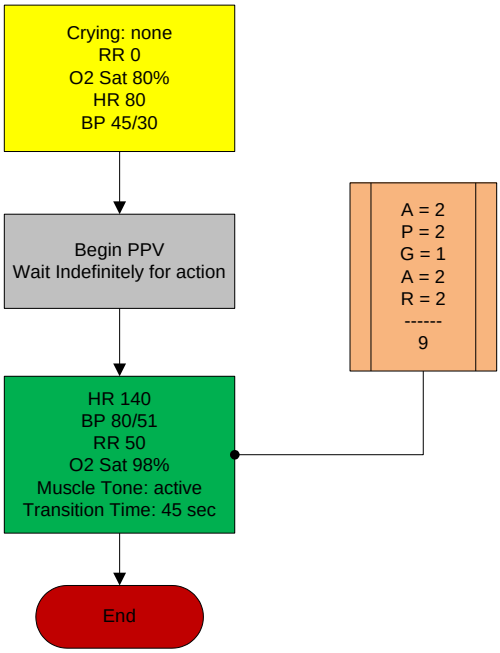
Baby has an asphyxia attack and the providers need to give ventilations to help bring back the vitals to a healthy state.



Newborn HAL®

Beth's (Donna's) Baby

Baby is born with a mild asphyxia that needs attention. Once ventilations are started, the baby's vitals go to a healthy state.



Gaumard®
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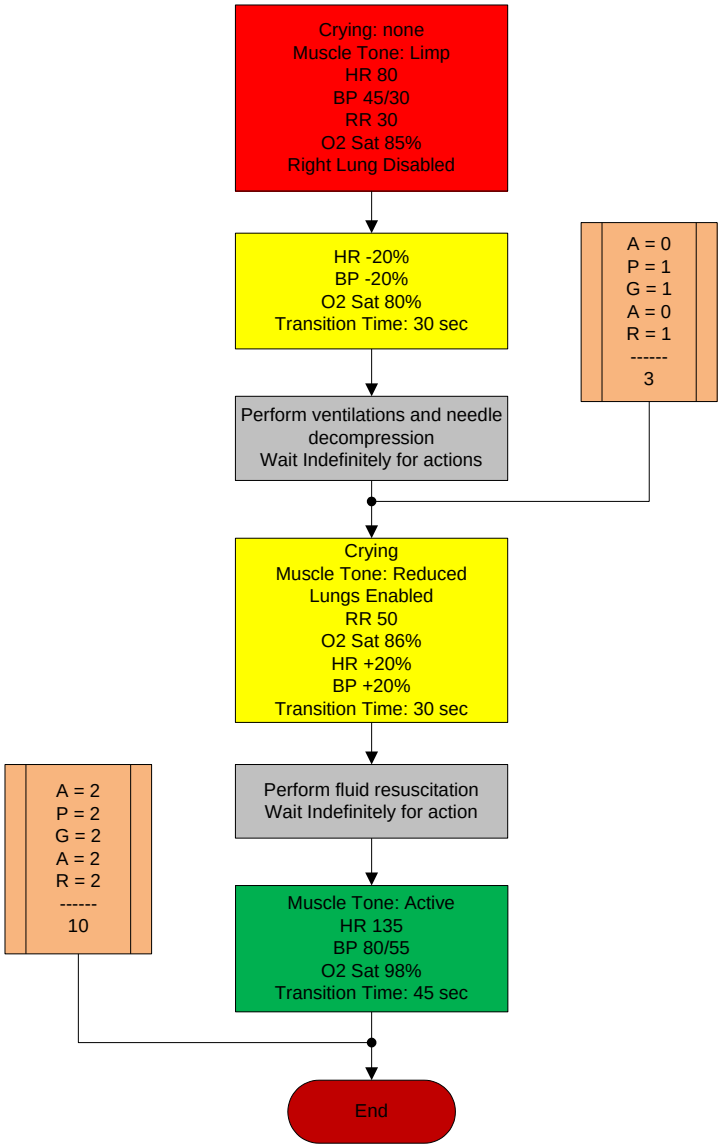
Newborn HAL®

Cynthia's Baby

Male infant with central cyanosis, limp, flaccid and requires immediate resuscitation. No spontaneous movement of right arm is noted. Stat CXR reveals a fractured right clavicle and right pneumothorax.

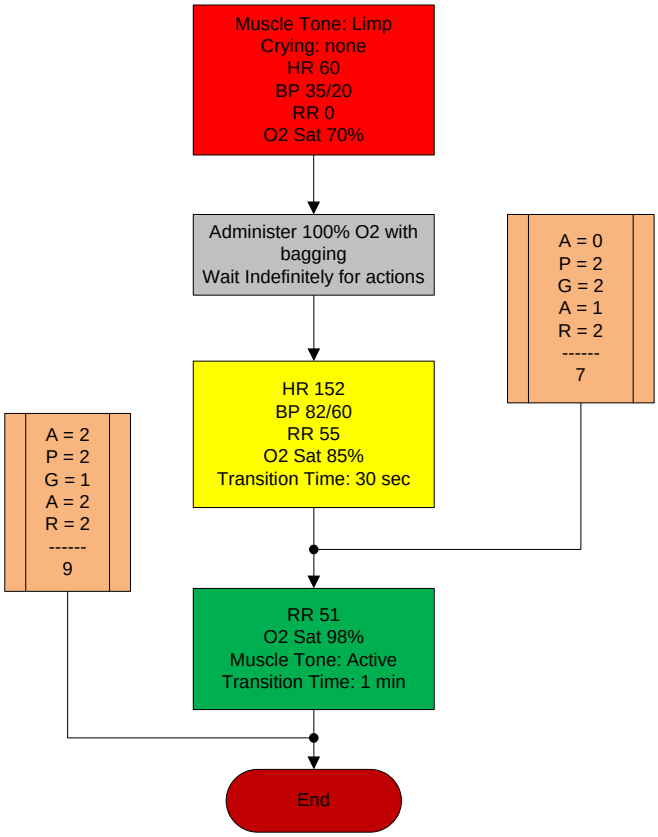


Gaumard®
Simulators for Health Care Education

Newborn HAL®

Elaine's Baby

This baby is born with moderate asphyxia, and will require CPR and oxygen to bring the vitals to a healthy state.

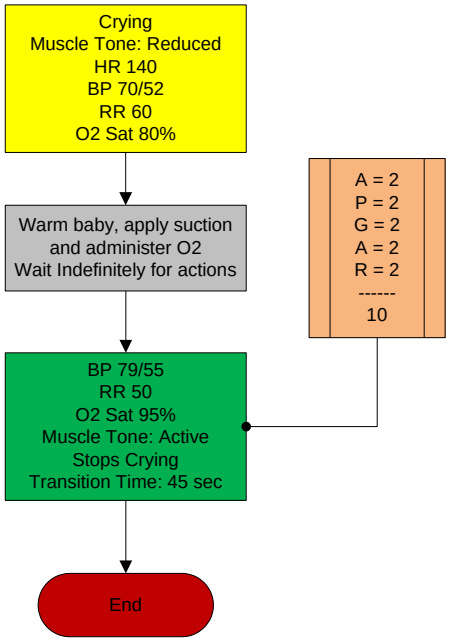


Gaumard®
Simulators for Health Care Education

Newborn HAL®

Francines's Baby

This baby was born through a C-Section and is responsive but needs some attention, after a while all vitals go to a healthy state.

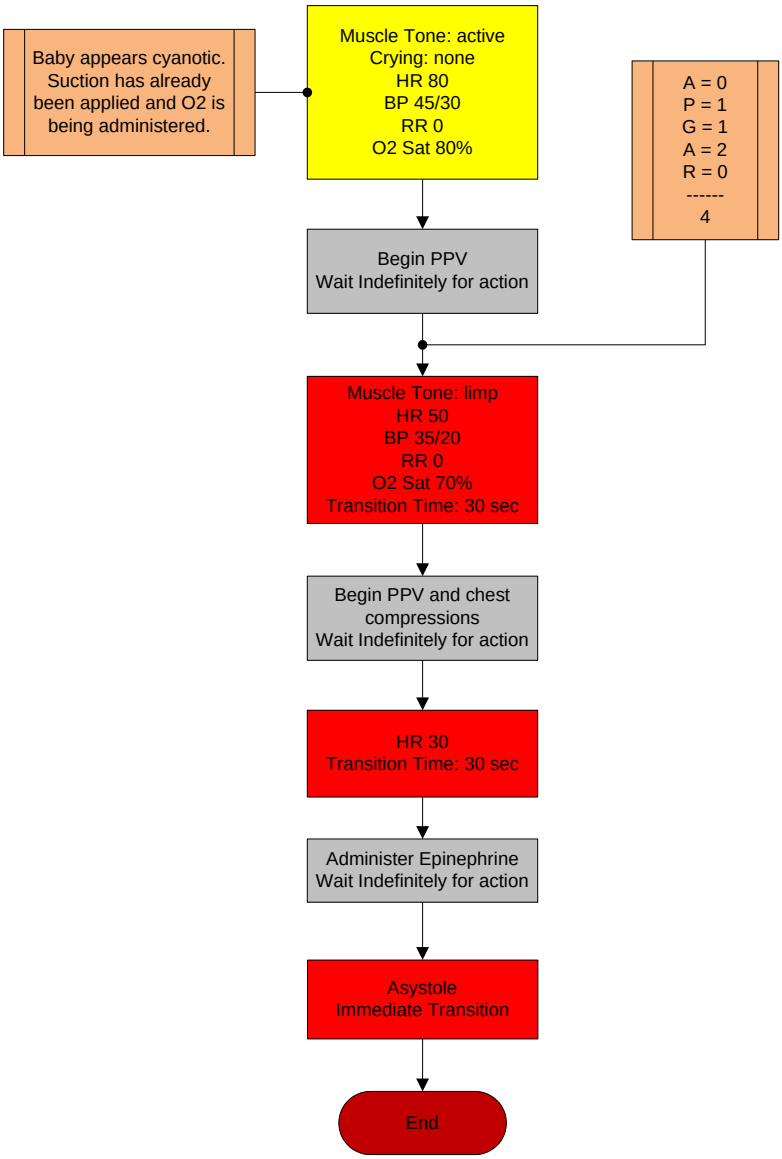


Gaumard®
Simulators for Health Care Education

Newborn HAL®

Gloria's Baby

This baby is born with mild asphyxia, but no matter how good the interventions are, this disastrous intrapartum complication results in neonatal death.

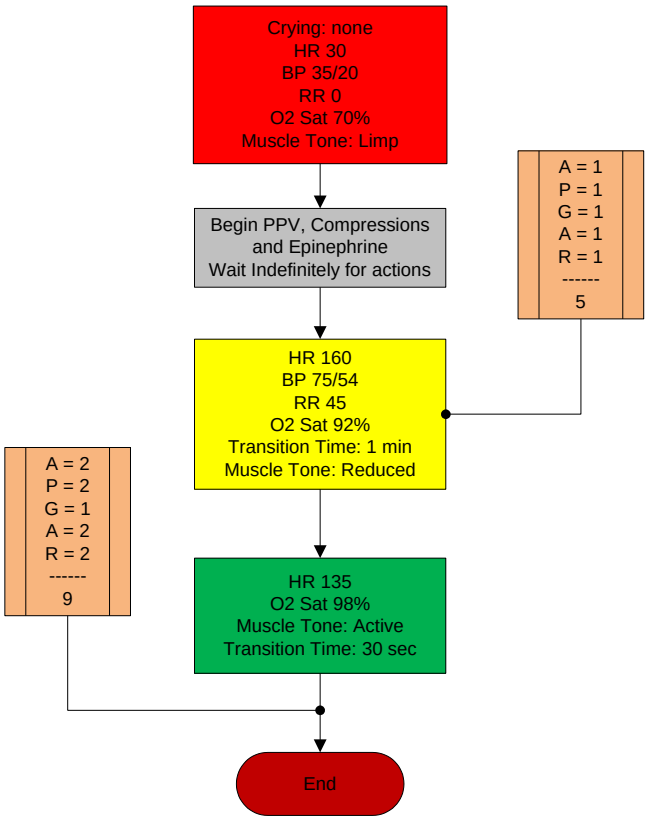


Gaumard®
Simulators for Health Care Education

Newborn HAL®

Helen's (Irene's) Baby

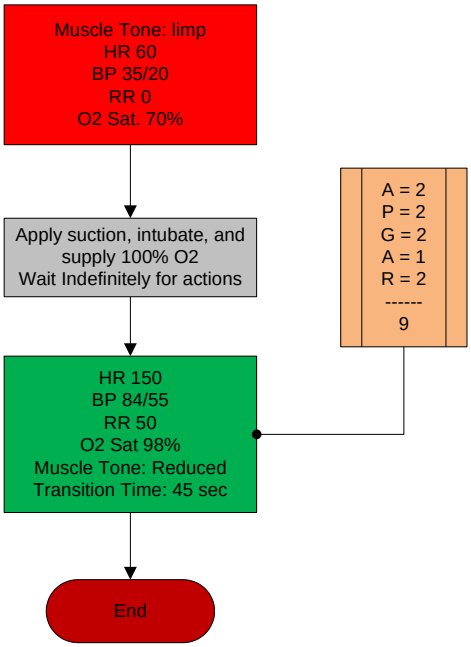
This baby is born with a severe asphyxia that has to be treated immediately. After ventilations and EPI have been given, the baby's vitals go towards a good outcome.



Gaumard®
Simulators for Health Care Education

Newborn HAL®
MAS

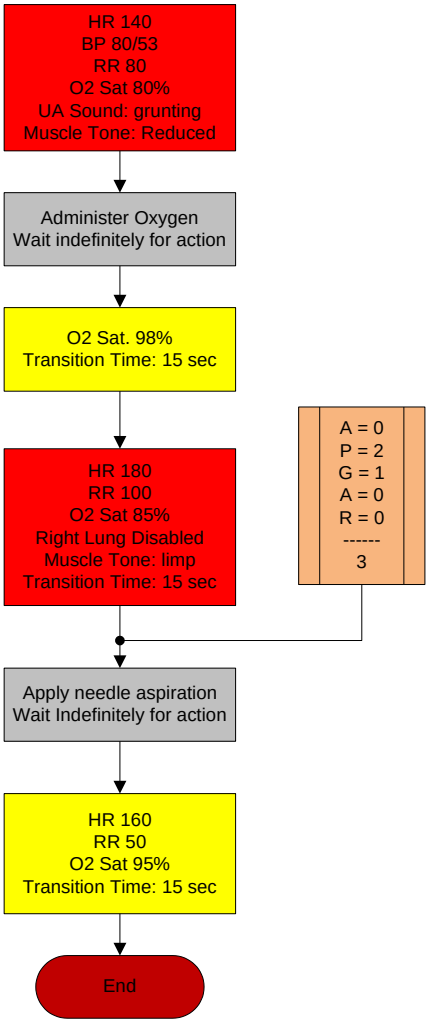
Meconium Aspiration Syndrome



Gaumard®
Simulators for Health Care Education

Newborn HAL®
RDS

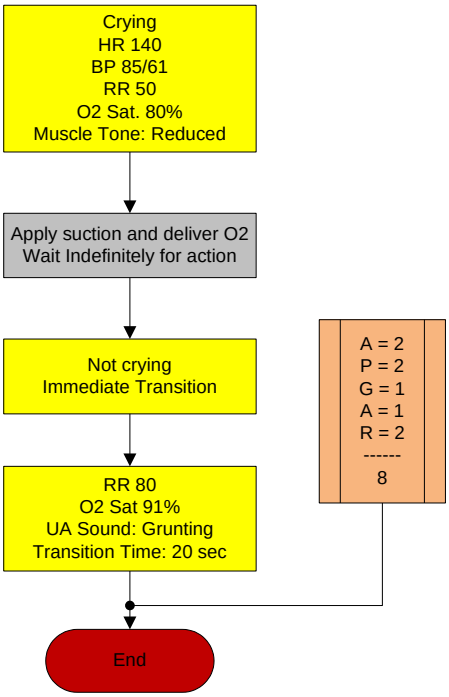
Newborn with mild Respiratory Distress Syndrome gets a pneumothorax after oxygen is given.



Gaumard®
Simulators for Health Care Education

Newborn HAL®
TTN

Transient Tachypnea of the Newborn



More about scenarios

THINKING IN TERMS OF PALETTE ITEMS

As described previously, palette items represent complete or partial groups of settings that have been stored as a single item. Applying partial states will hold constant all settings that are left unspecified.

Not only does it take time to customize the palette, but a very large palette becomes difficult to navigate. So, it is desirable to minimize the number of Palette Items in each Profile. To accomplish this, an experienced facilitator tries to create items that are as generally applicable as possible and can therefore be applied to a wide range of scenarios. The key is to include only in your palette items the settings that are directly related to the physiological event represented by that palette item.

SMART SCENARIOS

After reading the Details, Palette, and Scenarios sections of this guide, it should be clear how to build a scenario. You may have already tried building your own or modifying some of the factory presets. The following four guidelines will refine your ability to build the best possible scenarios.

1. How will the scenario begin?

The first thing to consider is the initial condition of the patient. Create a Palette Item to describe this condition. Make sure that this first step in the scenario is a complete state. That is, indicate some selection for each available setting on the Details page. Remember that only the settings you specify will cause a change in the simulator, and all other settings will remain constant. Therefore, by starting with a complete state, the simulator's condition will always be the same when the scenario starts, regardless of what she was doing previously.

Likewise, the "transition duration" of the first step in the scenario should be zero, indicating that changes are applied immediately.

There is one point that can cause confusion and warrants further explanation. It is an extension of the above discussion of partial states. The issue is best illustrated through the following example:

Suppose that you are creating a Palette Item to start your scenario. In this case, you have decided that the patient will be apneic. The question is, "How should the lung sounds be set?"

Most people's first inclination is to set the lung sounds to "none." This is incorrect, despite apnea. Obviously, no lung sounds should be heard during apnea, but since you have already set respiratory rate to zero, none will be. (Sounds are synchronized to the breathing cycle.)

What you are really setting here when you choose a lung sound is the condition of the lungs, given respiratory drive. That is, if the patient's respiratory rate were changed from zero, what sound would be heard? Assuming that the lungs themselves are normal in this scenario, you would choose "normal" for the lung sound setting.

Then, as the scenario progresses, if the patient starts breathing, there will be no need to set the lung sound again. It will already be set. The same principle applies to the heart sound and other settings.

2. Include notes to guide the facilitator during the simulation.

It is common for scenario designers, especially those who act as facilitators, to neglect the importance of notes in the scenario. They think that they will remember the learning objectives, patient history, and other details at the time they are ready to conduct the simulation. They usually do not, especially when revisiting a scenario months after creating it.

When you add "Wait" and "Wait Indefinitely" steps to a scenario, you have an opportunity to edit the item description. Use this description field to hold notes to the facilitator. Typically, scenario designers write notes in that space to indicate what the provider(s) or facilitator should be doing at that point.

Further, when saving the scenario, you may edit the scenario description. This is the best place to put patient history and any other longer notes and instructions.

3. Assume that providers will do the right thing.

Usually a scenario should be created with the assumption that the providers will perform correctly. As long as they do, the scenario can be allowed to continue.

Naturally, preparation must be made for what might happen to the simulator when providers deviate from expectations. The consequences of such deviations can sometimes be included in the scenario, punctuated by "Wait Indefinitely" items. In other cases, the simulation will require more direct control by the facilitator via either the Palette or Details page.

4. Choose auto-response settings based on the scenario content and the objectives.

As seen, auto-responses can be used to free the facilitators' attention. They also enhance realism by presenting instant reactions to the care providers. On the other hand, sometimes it is not possible or desirable to determine the responses before the simulation begins. Different environments and applications call for different settings.

Some teaching practices are best done with the auto-response settings in Prompt mode. Responses must be triggered by a vigilant facilitator. Though it is slower and requires more attention, the benefit of Prompt over other modes is that the simulation can be allowed to go in any direction, and it will be possible to choose the response on a case-by-case basis.

Other learning exercises require a higher degree of automation. For such applications, most facilitators choose Auto mode for the auto-response settings. The key issue is standardized timing of symptom presentation. A consistent, repeatable simulation is essential for fair assessment of that care provider in relation to others and for the broader interpretation of results in the context of training validation studies.

When in doubt, it is best to choose Prompt mode, in which the facilitator will be given direct control of the responses as events are detected

Troubleshooting

Use the following table to find causes and solutions to a number of possible problems.

Symptom	Possible Cause	Solution
Battery does not recharge. Simulator turns off even after a full charge.	Attempting to recharge simulator using the "power supply"	Turn off the simulator and connect the battery charger. Reset the charger if necessary, see below.
	Simulator is on	The simulator does not charge while it is powered on. Turn off the simulator and connect the battery charger.
	The battery charger is stuck on the "charged/Green" state; charger requires reset.	If the battery charger indicator light goes to green immediately, reset the charger using the steps below: 1. Turn off the simulator 2. Disconnect the charger from the wall and the simulator. 3. Please wait 60 seconds while the charger resets 4. Reconnect the charger to the wall only. Please wait approximately 30 seconds for the charger to initialize 5. Reconnect the charger to the simulator 6. Keep the simulator off until the battery is fully recharged.
	Charger is broken	Check the charger connector that goes into the simulator. The charger should have 3 pins. If any pins are bent or broken, please contact Gaumard for a replacement.
Communication never gets established or is lost **(blinking communi-cation indicator is consistently red)**	Battery is discharged	Turn off the software and plug "charger" adapter to the simulator. The charger's LED will turn green when the simulator is completely charged. Do not turn on the GIGA software until the charging process is complete. The adapter labeled "Power Supply" does not recharge the battery. Disconnect the "Power Supply" and follow the charging procedure explained above.
	Computer is too far away from simulator	Get simulator closer to computer.
	RF module is not connected	Close the GIGA software and connect the USB RF module to the tablet computer.
	Trying to communicate	After clicking the GIGA icon, select the

Symptom	Possible Cause	Solution
	with a different simulator	name of the applicable simulator and click "Start". On the menu bar go to Setup> Options> Environment and select FIXED. Then, enter the simulator's serial number in the text box. Finally, restart the software.
	Multiple simulators are on at the same time.	Select different channels for each of the simulators, and then turn them on one at a time, meaning: Wait until a link has been established between the tablet and the simulator (the yellow window goes away). Only after that, start running the GIGA software in the second tablet, and so on for the rest of the simulators. To do so, go to menu Setup → Options → Environment → Select "Auto change to channel: #" (# = number from 1 – 11).
	All others	Close the GIGA software and unplug the RF module for at least 5 seconds, then plug it back in. Restart the software and wait for initialization. On the menu bar go to Setup>Options>Environment and select FIXED. Then, enter the simulator's serial number in the text box. Finally, restart the software.
Simulator doesn't run for the time specified on the manual	Battery not charged properly	Turn off the software and unplug "charger" adapter from the wall and the simulator for 1 minute. Reconnect the "charger" to the wall and the simulator. Unplug the charger when the charger's LED turns green indicating that the simulator is completely charged. Do not turn on the GIGA software until the charging process is complete.
Simulator doesn't respond to any command even that blinking communication indicator is consistently green	The computer is properly communicating with a different simulator.	On the menu bar go to Setup> Options> Environment and select FIXED. Then, enter the simulator's serial number in the text box. Finally, restart the software.
Commands are taking longer than usual to take effect or simulator is not reporting every action (blinking communication indicator is consis-	Distance between computer and simulator is reaching its limit or there are too many obstructions between (walls, etc)	Get simulator closer to computer or move away from obstructions

Symptom	Possible Cause	Solution
tently yellow)	There's too much RF interference either from another Gaumard tetherless simulator in the vicinity or an RF radiator.	Try changing the RF channel by going to the menu for Setup → Options → Environment → Select "Auto change to channel: #" (# = number from 1 – 11).
GIGA has set the power mode to STAND-BY automatically	The battery on the simulator is depleted	Turn off the software and plug "charger" adapter to the simulator. The charger's LED will turn green when the simulator is completely charged. Do not turn on the GIGA software until the charging process is complete. The adapter labeled "Power Supply" does not recharge the battery.
"RF module not found" message is displayed when GIGA is started	RF module not connected	Connect the RF module to any USB port.
	RF module not identified by the computer	Close the software and disconnect the RF module for at least five seconds, then plug it back in and restart the software
Chest compressions are not properly detected or not detected at all	Is the communication indicator panel consistently yellow?	See solution above in section making reference to "blinking communication indicator is consistently yellow"
	Is the respiratory rate set to "0 / min"? Chest compressions are only detected when the respiratory rate is set to 0 per minute (0 / min). Otherwise they are ignored	Set respiration rate to zero
	Neck is hyper flexed	Return the head to a normal position. Recalibrate the "Head Position" sensor.
	All others	See "Calibration Wizard" section inside User's Manual
Artificial ventilations are not properly detected or not detected at all	Is the communication indicator panel consistently yellow?	See solution above in section making reference to "blinking communication indicator is consistently yellow"
	All others	See "Calibration Wizard" section inside User's Manual
Simulator's chest does not rise with artificial ventilation (e.g. BVM)	Simulator not running	In some simulators, the trachea is disconnected from the lungs when they are not on.

Symptom	Possible Cause	Solution
	Lungs are disabled	Enable the lungs from “Detail” page on the GIGA software
Low chest rise (or no chest rise at all) while breathing	Wrong settings or disabled lungs	Make sure lungs are enabled and both respiration rate and inspiration percent are different than “0”. Try changing the respiration rate to a different value, and if still nothing happens, try turning the restart the simulator.
Loss of brachial pulse	Brachial pulses disabled	Make sure to enable brachial pulse on “Details” tab page
Pre-built scenarios don’t show up		Select “Quick Start Scenarios” when starting the software. Should user forget to do so, there’s no need to shut down the software and open it again in order to load the pre-built scenarios. Go to “File/Profile” menu and then select “Modeled Scenarios”
A sound is absent or is not heard at desired volume level	Volume not set to user’s criterion.	Every sound has a volume control. Play with the volume control to get it to the desired level.

Wireless ad-hoc network

GIGA generates the vital signs information displayed on the virtual monitor PC. The information is transmitted through a wireless ad-hoc connection between the two computers in real time.

The wireless settings are configured at the factory, so no additional configuration is required. Please reference the troubleshooting information included on page 143 to resolve common connectivity issue before attempting to reconfigure the network.

Use the “Create an ad-hoc Wireless network” tool to configure the wireless ad-hoc link between the two computers. Then, configure the connection between GIGA and the Gaumard Monitors software.

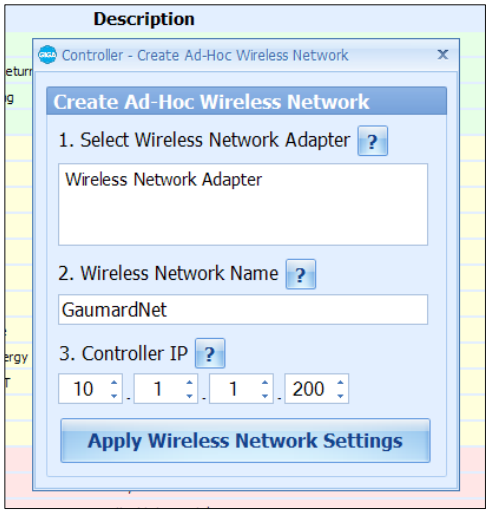
GIGA NETWORK CONFIGURATION

Complete the next steps using the “Controller - Create Ad-Hoc Wireless Network” tool built in to GIGA software.

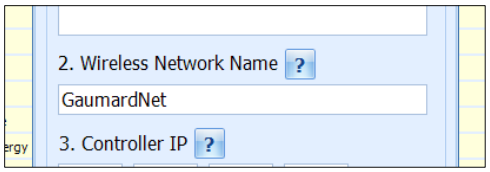
1. From the menu bar, go to Help > “Create ad-hoc Wireless Network”

15. The “Controller - Create Ad-hoc Wireless Network” window is displayed

2. Select the “Wireless Network Adapter”. If the wireless adapter is not listed, first enable the adapter using the Windows® network menu and then return to this window.

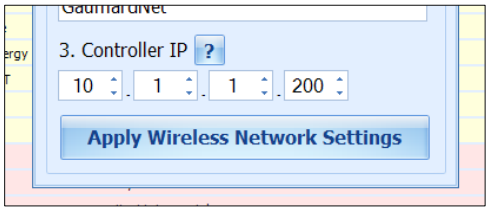


3. Enter a wireless network name (case sensitive). Use the same wireless network name to configure the Gaumard Monitors PC. “GaumardNet” is the required name for Windows® 7 computers.



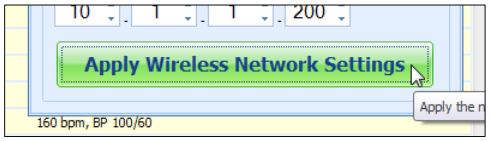
4. Set the “Controller IP”.

16. On each control PC and virtual monitor PC, enter the same values for the first three IP fields and a set unique value for the last field. The suggested address is for the **Controller IP** is **10.1.1.200**



5. Click “Apply Wireless Network Settings” to save the settings.

6. Restart the computer.

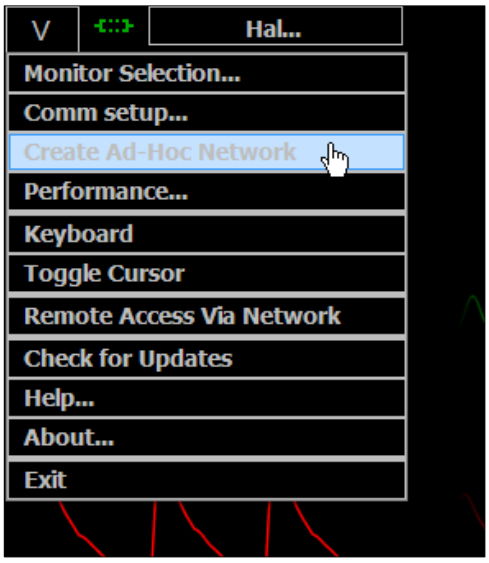


GAUMARD MONITORS NETWORK CONFIGURATION

After the GIGA control computer is configured, complete the next steps using the “Create an ad-hoc network tool” included in Gaumard Monitors software.

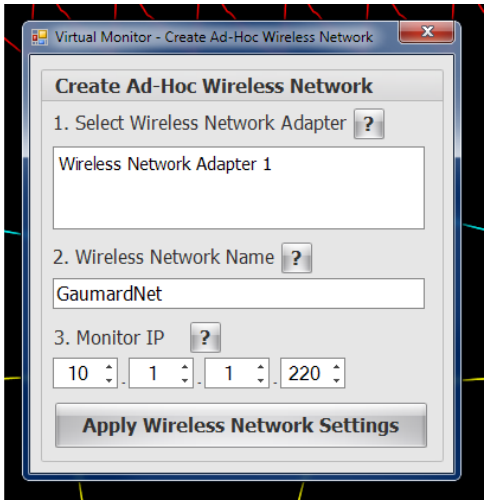
1. On the virtual monitor computer, click the Gaumard Monitors icon to start the vital signs software.

2. Click the V menu near the top left corner and select “Create Ad-Hoc Network”.

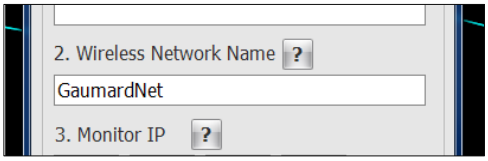


The “Virtual Monitor - Create ad-hoc Wireless Network” window is displayed.

3. Select “Wireless Network Adapter”. If the wireless adapter is not listed, first enable the adapter using the Windows® network menu and then return to this window.

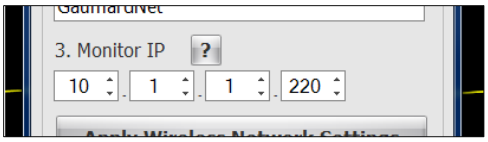


4. Enter a wireless network name (case sensitive). Use the same name entered in the controller computer. “GaumardNet” is the required name for Windows® 7 computers.



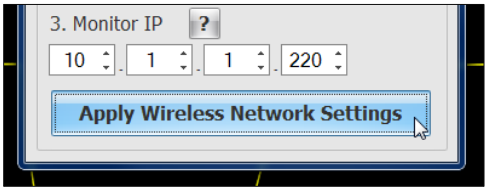
5. Set the “Monitor IP”.

17. On each control PC and virtual monitor PC, enter the same values for the first three IP fields and a set unique value for the last field. The suggested address is for the **Monitor IP** is **10.1.1.220**



6. Click “Apply Wireless Network Settings” to save the settings.

7. Restart the computer.



CONFIGURE THE VITAL SIGNS BROADCAST

After the wireless ad-hoc link is established between both computers, complete next steps to configure the transmission of the vital signs information.

1. Verify that both computers are connected to the GaumardNet network using Windows® wireless connection menu. If the computers are not connected, select the “GaumardNet” network and click “Connect” manually.

2. Start the GIGA control software.

3. On the GIGA menu bar, click Monitors> Configuration.

18. The “NEWBORN HAL Virtual Monitor Setup” window is displayed.

4. Set the adapter to “Wireless network connection” and click “Connect” to begin transmitting the vital signs information. Write down the “controller IP” and “Port number”.

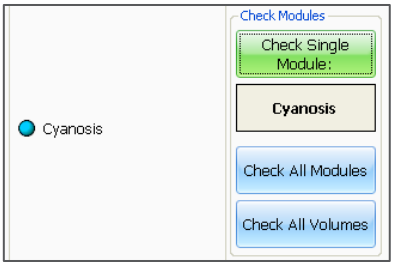
5. Start the Gaumard Monitors software on the virtual monitor PC.

6. Click the “V” menu near the top left corner, and then select “Comm Setup”.

19. The “TCP Comm Setup” window is displayed.

7. Enter the “Controller IP” and “Port number” displayed on the GIGA “Virtual Monitor Setup” window.

8. Click “Connect” to accept the incoming connection

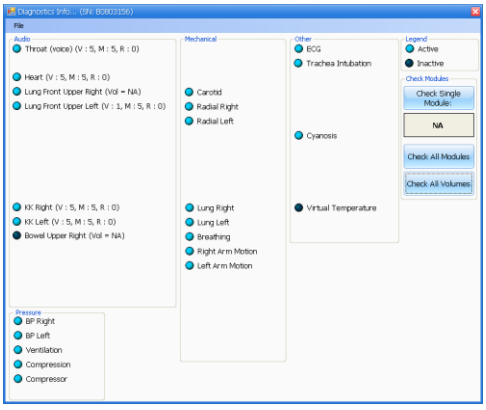


Diagnostics

On the menu bard, click Help>Diagnostics to open the module diagnostics window. The diagnostics window is used to test the status of each of the modules equipped in the simulator during troubleshooting. Click "Check All Modules" to perform a full status test.

Active modules report light blue, and inactive modules report black. If there is a specific module that fails to respond please contact customer support.

Modules for features not installed on the simulator will report inactive.



To perform an individual module check, first select the module and click “Check Single Module”. Notice that the name of the module is displayed on the right column when it is selected.

Consumables, Replacements, and Optional Parts

Contact Gaumard Scientific for a **complete list** of consumables and replacement parts and their prices.
C=Consumables; R=Replacements; A=Accessories; U=Upgrades; M = Factory Repair ONLY

Item ID	Name	Type	Description
S3010.001	A/C Virtual Monitor	A	17" Touch Screen monitor and desktop
S3010.002	D/C Virtual Monitor	A	D/C Powered 12" Touch Screen Mobile Monitor with stylus
S3010.010	Battery	C	Rechargeable battery
S3010.011	Battery Charger	R	100-240 V AC external battery charger
S3010.013	Power Cord	R	
S3010.020	Umbilical Cord Kit	C	
S3010.023L.L	Lower Left Arm	C	Lower left arm assembly
S3010.023R.L	Lower Right Arm	C	Lower right arm assembly
S3010.027L.L	Lower Left Leg		Light color lower left leg. No IV access.
S3010.027L.R2.L	Lower Left Leg	R	Includes knee plastic connectors.
S3010.029R.L	I/O Leg Skin Cover	C	Light color skin cover for right leg tibia bone
S3010.031	I/O Tibia bones	C	I/O leg tibia reservoir bones
S3010.060	Simulator Transport Case	R	Soft storage and transport case
S3010.061	Simulator Transport Case	A	Hard storage and transport case
S3010.080	Simulated Blood Concentrate	C	
S3010.081	Silicone Oil	C	Oil-based Silicone lubricant
S3010.085	Modified Neonatal Blood Pressure Cuff	R	BP Cuff for Newborn Hal S3010
S3010.200	Audio & Video Recording System	A	
S3010.204	Tablet PC	R	Wireless tablet PC with stylus control
S3010.205	Bump Case	R	Bump case for tablet PC
S3010.206	RF Module	R	Radio Frequency Module with USB connector
S3010.EXW	Two Year Extended Warranty	A	Extended warranty for years Two AND Three
S3010.INST	In-Service Training	A	Day of in-service training and installation

C=Consumables; R=Replacements; A=Accessories; U=Upgrades; M=Replace in Miami Factory ONLY

Warranty

EXCLUSIVE ONE-YEAR LIMITED WARRANTY

Gaumard warrants that if the accompanying Gaumard product proves to be defective in material or workmanship within one year from the date on which the product is shipped from Gaumard to the customer, Gaumard will, at Gaumard's option, repair or replace the Gaumard product.

This limited warranty covers all defects in material and workmanship in the Gaumard product, except:

Damage resulting from accident, misuse, abuse, neglect, or unintended use of the Gaumard product;

Damage resulting from failure to properly maintain the Gaumard product in accordance with Gaumard product instructions, including failure to property clean the Gaumard product; and

Damage resulting from a repair or attempted repair of the Gaumard product by anyone other than Gaumard or a Gaumard representative.

This one-year limited warranty is the sole and exclusive warranty provided by Gaumard for the accompanying Gaumard product, and Gaumard hereby explicitly disclaims the implied warranties of merchantability, satisfactory quality, and fitness for a particular purpose. Except for the limited obligations specifically set forth in this one-year limited warranty, Gaumard will not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory regardless of whether Gaumard has been advised of the possibilities of such damages. Some jurisdictions do not allow disclaimers of implied warranties or the exclusion or limitation of consequential damages, so the above disclaimers and exclusions may not apply and the first purchaser may have other legal rights.

This limited warranty applies only to the first purchaser of the product and is not transferable. Any subsequent purchasers or users of the product acquire the product "as is" and this limited warranty does not apply.

This limited warranty applies only to the products manufactured and produced by Gaumard. This limited warranty does not apply to any products provided along with the Gaumard product that are manufactured by third-parties. For example, third-party products such as computers (desktop, laptop, tablet, or handheld) and monitors (standard or touch-screen) are not covered by this limited warranty. Gaumard does not provide any warranty, express or implied, with respect to any third-party products. Defects in third-party products are covered exclusively by the warranty, if any, provided by the third-party.

Any waiver or amendment of this warranty must be in writing and signed by an officer of Gaumard.

In the event of a perceived defect in material or workmanship of the Gaumard product, the first purchaser must:

Contact Gaumard and request authorization to return the Gaumard product. Do NOT return the Gaumard product to Gaumard without prior authorization.

Upon receiving authorization from Gaumard, send the Gaumard product along with copies of (1) the original bill of sale or receipt and (2) this limited warranty document to Gaumard at 14700 SW 136 Street, Miami, FL, 33196-5691 USA.

If the necessary repairs to the Gaumard product are covered by this limited warranty, then the first purchaser will pay only the incidental expenses associated with the repair, including any shipping, handling, and related costs for sending the product to Gaumard and for sending the product back to the first purchaser. However, if the repairs are not covered by this limited warranty, then the first purchaser will be liable for all repair costs in addition to costs of shipping and handling.

EXTENDED WARRANTY

In addition to the standard one year of coverage, the following support plans are available:

Two-Year Extension (covers second and third years)

Call for pricing (USA only)

Contact Us

E-mail Technical Support: support@gaumard.com
E-mail Sales and Customer Service: sales@gaumard.com
Phone:
Toll-free in the USA: (800) 882-6655
Worldwide: 01 (305) 971-3790
Fax: (305) 667-6085
Before contacting Tech Support **you must**:

1. Have the simulator's Serial Number (located in the left leg under the IM site)
2. Access to the simulator and the control computer if troubleshooting is needed.

Post: Gaumard Scientific
14700 SW 136 Street
Miami, FL 33196-5691
USA
Office hours: Monday-Friday, 8:30am - 4:30pm EST (GMT -4 Summer Time)

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